

**UNDERGROUND INJECTION CONTROL
PERMIT APPLICATION**

**Ute Tribal # 17-04
697' FNL & 636' FWL
Sec. 17, T5S-R3W
Duchesne County, Utah
API # 43-013-31464**

July 2015

Prepared for:
Bruce Suchomel
Groundwater Program, Mail Code 8P-W-UIC
U.S. Environmental Protection Agency
1595 Wynkoop St
Denver, CO 80202-1129

Prepared by:
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Boise, Idaho 83707
(208) 685-7600
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LIST OF ATTACHMENTS

- Attachment No. 1 Area Topography Map
- Attachment No. 2 Site Map
- Attachment No. 3 Map of the A-Marker surface
- Attachment No. 4 Cross-Sections of the injection formation
- Attachment No. 5 Water Analysis
- Attachment No. 6 Completion data for all wells in the AOR
- Attachment No. 7 CBL for the UIC well
- Attachment No. 8 Open hole log for the UIC well
- Attachment No. 9 List of owners and Affidavit Notification
- Attachment No. 10 Well bore diagrams for the UIC well
- Attachment No. 11 P&A procedure
- Attachment No. 12 MIT procedure
- Attachment No. 13 Surety Bond letter

SUMMARY DOCUMENT
UIC WELL APPLICATION
Ute Tribal 17-04
API # 43-013-31464

The following document contains information provided in support of the application for the conversion of the Ute Tribal 17-04 well to an injection well in the Green River formation in the Antelope Creek Field in Duchesne County, Utah.

The Antelope Creek Field falls within the Uintah and Ouray Indian reservations and is within Indian Country; therefore, for facilities located on the reservation, only EPA-issued UIC permits are necessary for compliance with UIC regulations.

The EPA has issued an Area Permit #UT20736-00000 for the Underground Injection Control for the Antelope Creek Field. This area permit allows for additional producing wells to be converted to injection wells for enhanced recovery.

- (1) Petroglyph Energy, Inc. (Petroglyph) is the operator and only working interest owner of wells located in the Antelope creek Field, Duchesne County, Utah. Petroglyph's business address is provided below:

Petroglyph Energy, Inc.
960 Broadway Avenue, Suite 500
P.O. Box 70019
Boise, ID 83707

- (2) Enclosed as Attachment No. 1 is a topographic map of a portion of the Antelope Creek Field, identifying all wells located in this area. The legal location for the Ute Tribal 17-04 is 697' FNL & 636' FWL NW/NW Sec. 17, T5S-R3W.
- (3) Attachment No. 2 is a map of the well. This map shows a circle with a ¼ mile radius centered on the Ute Tribal 17-04 well. The ¼ mile radius encompasses the area of review, AOR, within which Petroglyph is required to investigate all wells for mechanical integrity. The ¼ mile radius also identifies mineral ownership; all lands within the AOR are leased to Petroglyph by the Ute Tribe as indicated by yellow shading. The AOR has Ute Tribal 08-14, Ute Tribal 17-03, Ute Tribal 17-05, Ute Tribal 17-05A, and Ute Tribal 18-01 well(s) located in its ¼ mile radius.

- (4) Petroglyph proposes to utilize the Ute Tribal 17-04 as an injection well for enhanced recovery in the Antelope Creek Field.
- (5) Injection Zone – The injection intervals are between 3728’ and 5720’ True Vertical Depth and located in the lower portion of the Green River Formation. The injection zone is confined within a 1992’ section between the Green River “A” Lime marker bed and the top of the Basal Carbonate in the lower part of the formation. The injection zone is composed of lenticular calcareous sandstones interbedded with low permeable carbonates and calcareous shales. The lenticular sandstones vary in thickness from 1 to 30 feet.

Confining Zone – The overall confining strata above the injection zone consists of impermeable Green River calcareous shales and continuous beds of microcrystalline dolostone. The confining zone in the Ute Tribal 17-04 is 402 feet thick.

Attachment No. 3 is a structure map of the A-Marker surface.

Attachment No. 4 is a cross-section of the injection interval and confining zone.

- (6) Enclosed as Attachment No. 5 are standard analyses of produced water from three batteries that currently serve as central handling facilities for all project producing wells. The analysis of the Green River formation water from the Ute Tribal 18-08 Satellite Battery is 12805 mg/L of total dissolved solids (TDS), Ute Tribal 21-11 Satellite Battery is 15659 mg/L TDS, and Ute Tribal 34-12-D3 Satellite Battery is 14590 mg/L TDS.

Injectate in the field is a mixture of produced water and fresh make-up water. The nearest injection well is the Ute Tribal 18-01, the most recent analysis of the water being injected into the Green River formation at this location is 11210 mg/L TDS. This analysis is also included in Attachment No. 5.

- (7) A summary of completion data from the Ute Tribal 17-04 and offset wells in the AOR are included in Attachment No. 6
- (8) The cement bond log is included in Attachment No. 7.
- (9) The open hole log for the Ute Tribal 17-04 is included in Attachment No. 8.

(10) The Antelope Creek Field is operated under a Cooperative Plan of Development between the Ute Tribe and Petroglyph Energy. At the Ute Tribal 17-04 location, all mineral owners, surface owners and operators located within the AOR ¼ mile radius have been notified of the submitted EPA application to convert to injection. Attachment No. 9 is the Affidavit of Notification to all owners.

(11) Petroglyph requests a maximum surface injection pressure of **1769psi**. The EPA Area Permit No. UT20736-00000 uses the formula:

$$P_m = (0.88\text{psi/ft} - 0.43\text{psi/ft}(S_g)) D$$

Where:

P_m = Maximum surface injection pressure

0.88psi/ft = Fracture gradient

D = Top perforation depth

0.43psi/ft = Hydrostatic pressure/hydraulic head

S_g = Specific gravity of injection fluid

For the Ute Tribal 17-04:

$$\mathbf{1769\text{psi} = (0.88\text{psi/ft} - 0.43(1.00)) 3931\text{ft}}$$

(12) Three wellbore diagrams for the Ute Tribal 17-04 are in Attachment No. 10. One diagram is for production, one for injection, and one for Plug & Abandonment (P&A).

(13) The P&A procedure for this well is shown in Attachment No. 11.

(14) Once the draft permit is issued, Petroglyph will conduct a Mechanical Integrity Test and a static bottom-hole pressure test. The MIT procedure is contained in Attachment No. 12. The conversion work will be satisfactorily completed and submitted to the EPA on Form 7520-12. A wellbore schematic will be included with this form.

- (15) Petroglyph will give proof of financial responsibility by posting a surety bond for the UIC well prior to final permit approval. A copy of this letter is contained in Attachment No. 13.

- (16) Petroglyph will install various gauges on the well so that the injection pressure and tubing/casing annulus pressure can be monitored. The well will be equipped with a flow meter with a cumulative volume recorder.

ATTACHMENT NO. 1

AREA MAP

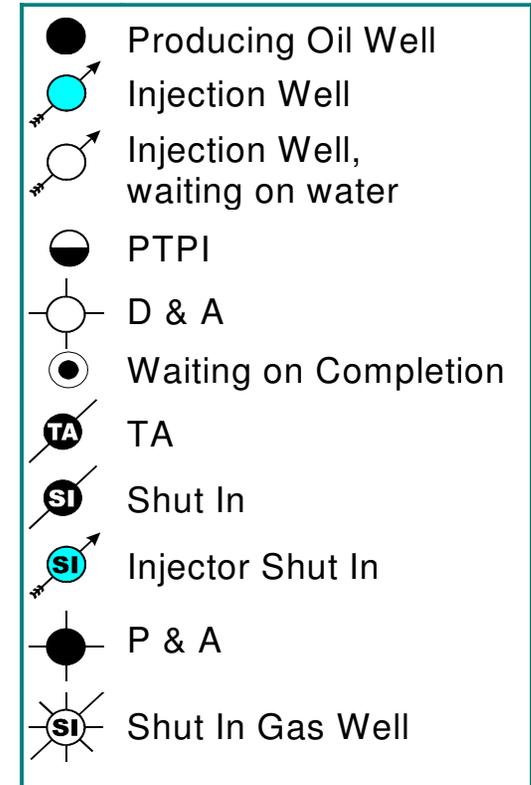
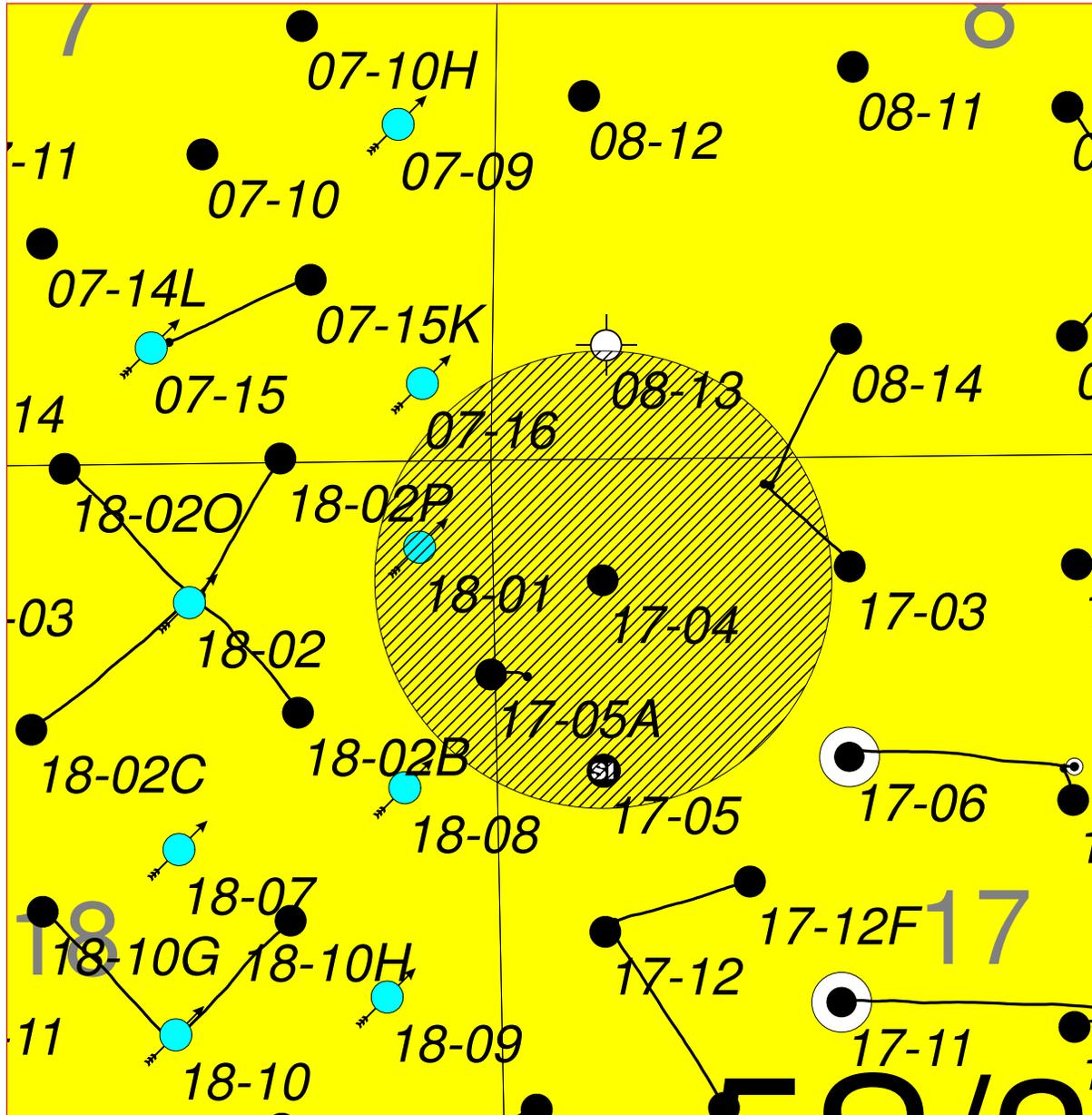
ATTACHMENT NO. 2

SITE MAP

RADIUS MAP OF ADJACENT WELLS

ATTACHMENT NO. 2:
SITE MAP

1:12000

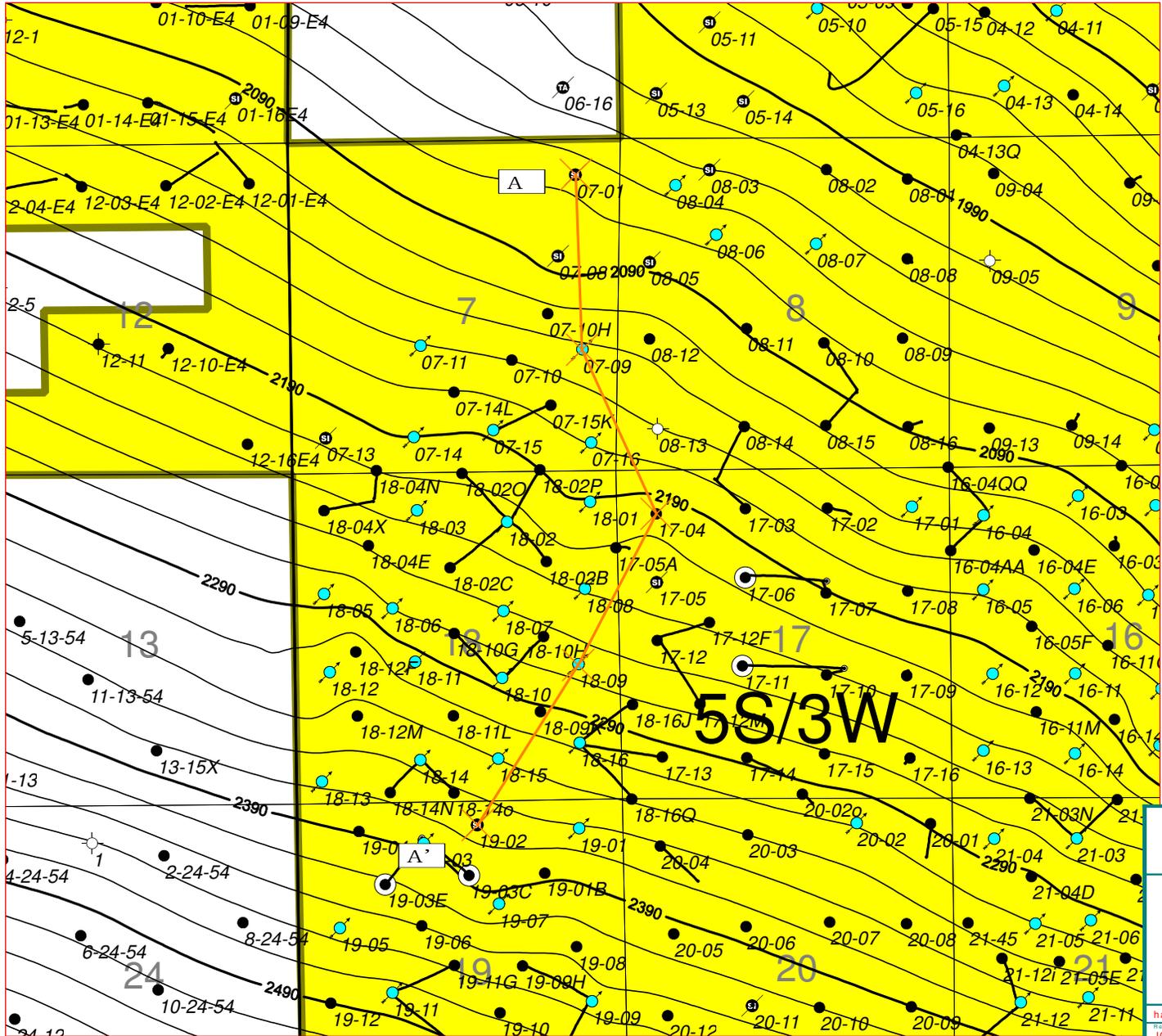


	ANTELOPE CREEK
	DUCHESNE COUNTY, UTAH
<p>Ute Tribal 17-04 Plat and Quarter-mile radius map. Ute Indian lands under Petroglyph lease shown in yellow</p>	
<p>Hack 9-15-06 Revised by: JG 3/24/15</p>	<p>Petroglyph Energy, Inc.; 960 Broadway Ave. Suite 500 PO Box 70019 Boise, ID 83707 PEI-GEOLah Regional/CTI, 17-04 quarter mile map.gmp</p>

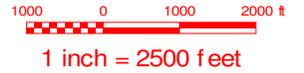
ATTACHMENT NO. 3

MAP OF THE A-LIME MARKER SURFACE

ATTACHMENT NO. 3:
Map of the "A" Lime Marker



1:30000



- Producing Oil Well
- Injection Well
- Injection Well, waiting on water
- PTPI
- D & A
- Waiting on Completion
- TA TA
- SI SI
- SI Injector Shut In
- P & A
- SI Shut In Gas Well

	ANTELOPE CREEK
	DUCHESNE COUNTY, UTAH

Structure Map of the "A" Lime Marker
(approximate top of Injection Zone)
in the Vicinity of the
Ute Tribal 17-04
With Line of Cross Section A to A'

Hack 9-30-05 Revised by JG 3/24/15	Petroglyph Energy, Inc., 555 S. Cole Rd., Boise, ID 83709 I:\SERV\Geo\Utah Regional\CT17-04 structure map.gmp
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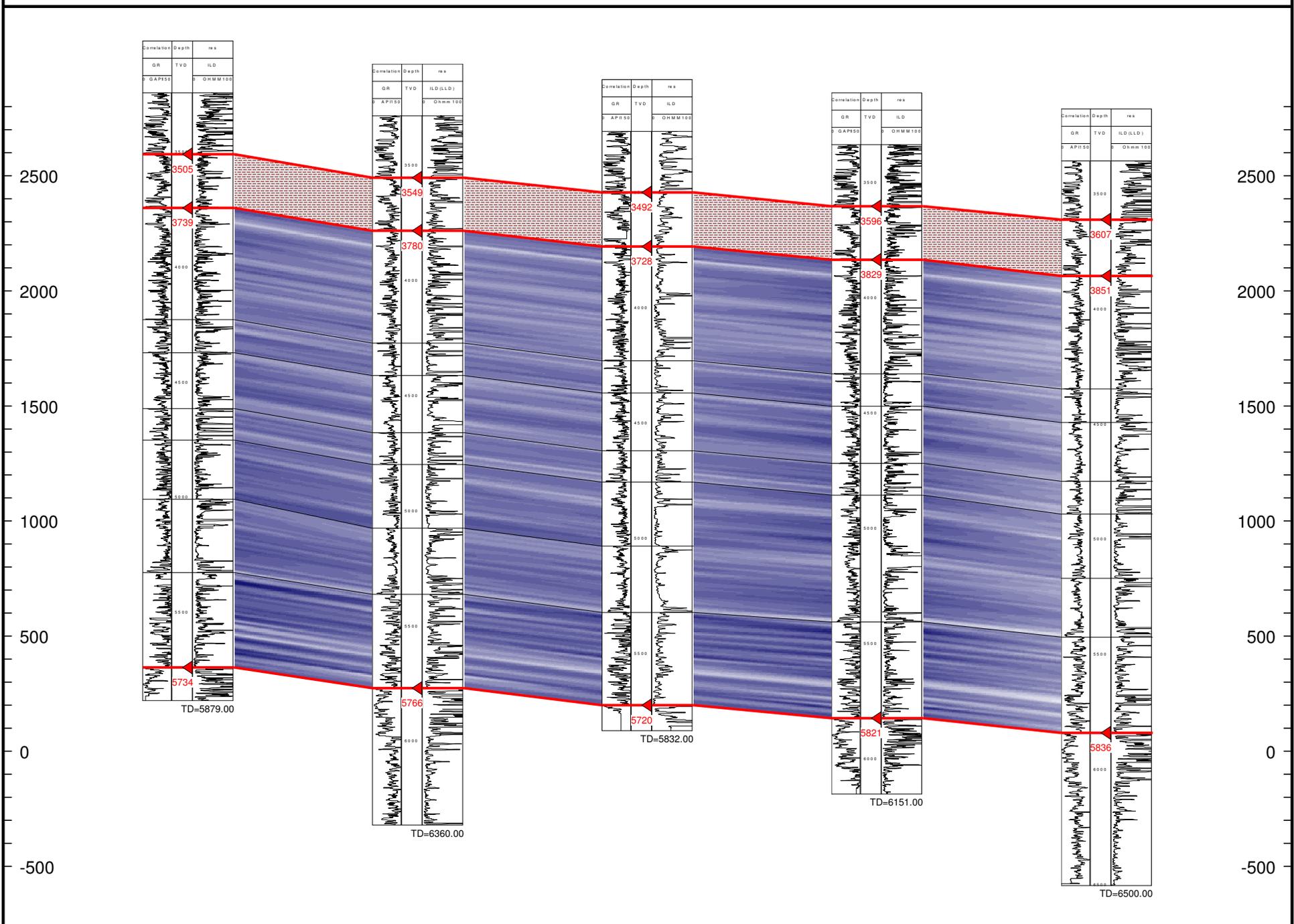
ATTACHMENT NO. 4
CROSS SECTIONS OF THE INJECTION FORMATION

Structural Cross Section in the Vicinity of Ute Tribal 17-04

A ← 3027 ft → ← 2725 ft → ← 2881 ft → ← 2803 ft → A'

43013319310000
43013311800000
43013314640000
43013319000000
43013308250000

PETROGLYPH OPERATING COMPANY INC Ute Tribal 19-02 383 FNL 2328 FEL TWP: 5 S - Range: 3 W - Sec. 19
 PETROGLYPH OPERATING COMPANY INC Ute Tribal 18-09 2151 FSL 667 FEL TWP: 5S - Range: 3W - Sec. 18
 PETROGLYPH OPERATING COMPANY INC UTE TRIBAL 17-04 697 FNL 636 FWL TWP: 5 S - Range: 3 W - Sec. 17
 PETROGLYPH OPERATING COMPANY INC Ute Tribal 07-09 1937 FSL 570 FEL TWP: 5 S - Range: 3 W - Sec. 7
 PETROGLYPH OPERATING COMPANY INC Ute Tribal 07-01 567 FNL 706 FEL TWP: 5 S - Range: 3 W - Sec. 7



ATTACHMENT NO. 5

WATER ANALYSIS

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**
 Well Name: **UTE TRIBAL 18-08 SATELLITE, DUCHESN**
 Sample Point: **PLANT DISCHARGE COMPLETE**
 Sample Date: **4/21/2015**
 Sample ID: **WA-307075**

Sales Rep: **James Patry**
 Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from
 Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations		Anions	
		mg/L		mg/L	
Test Date:	4/21/2015	Sodium (Na):	4541.75	Chloride (Cl):	6000.00
System Temperature 1 (°F):	60.00	Potassium (K):	41.78	Sulfate (SO4):	163.00
System Pressure 1 (psig):	14.70	Magnesium (Mg):	28.63	Bicarbonate (HCO3):	1952.00
System Temperature 2 (°F):	180.00	Calcium (Ca):	67.44	Carbonate (CO3):	
System Pressure 2 (psig):	2000.00	Strontium (Sr):	5.41	Acetic Acid (CH3COO)	
Calculated Density (g/ml):	1.0061	Barium (Ba):	0.90	Propionic Acid (C2H5COO)	
pH:	8.50	Iron (Fe):	2.74	Butanoic Acid (C3H7COO)	
Calculated TDS (mg/L):	12805.08	Zinc (Zn):	1.29	Isobutyric Acid ((CH3)2CHCOO)	
CO2 in Gas (%):		Lead (Pb):	0.05	Fluoride (F):	
Dissolved CO2 (mg/L):	0.00	Ammonia NH3:		Bromine (Br):	
H2S in Gas (%):		Manganese (Mn):	0.09	Silica (SiO2):	
H2S in Water (mg/L):	0.00				

Notes:

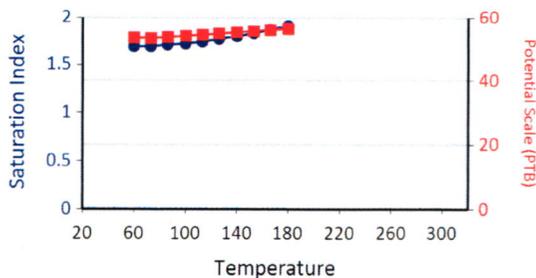
(PTB = Pounds per Thousand Barrels)

Temp (°F)	PSI	Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.91	56.41	0.09	0.09	0.00	0.00	2.59	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	1.87	56.05	0.13	0.14	0.00	0.00	2.54	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	1.83	55.66	0.19	0.19	0.00	0.00	2.49	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	1.80	55.27	0.26	0.24	0.00	0.00	2.44	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	1.77	54.86	0.33	0.29	0.00	0.00	2.38	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	1.74	54.46	0.42	0.33	0.00	0.00	2.32	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	1.72	54.08	0.52	0.38	0.00	0.00	2.26	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	1.71	53.72	0.64	0.41	0.00	0.00	2.20	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	1.69	53.39	0.77	0.45	0.00	0.00	2.14	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	1.69	53.56	0.92	0.47	0.00	0.00	2.08	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

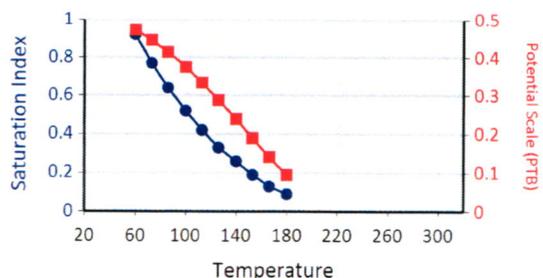
Temp (°F)	PSI	Hemihydrate CaSO4·0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	2.09	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	1.83	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	1.37	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report

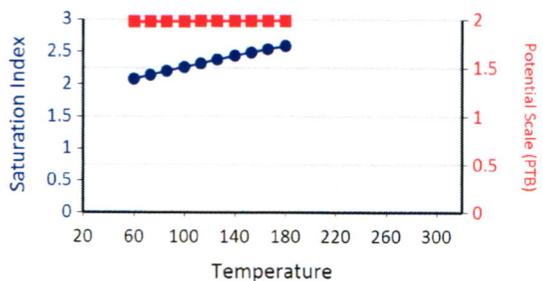
Calcium Carbonate



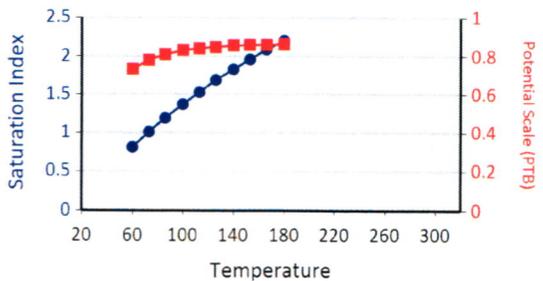
Barium Sulfate



Iron Carbonate



Zinc Carbonate



Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**
 Well Name: **UTE TRIBAL 21-11 SATELLITE, DUCHESN**
 Sample Point: **PLANT DISCHARGE COMPLETE**
 Sample Date: **4/21/2015**
 Sample ID: **WA-307071**

Sales Rep: **James Patry**
 Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from
 Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations		Anions	
		mg/L		mg/L	
Test Date:	4/21/2015	Sodium (Na):	5585.76	Chloride (Cl):	7000.00
System Temperature 1 (°F):	60.00	Potassium (K):	55.43	Sulfate (SO4):	277.00
System Pressure 1 (psig):	14.70	Magnesium (Mg):	10.62	Bicarbonate (HCO3):	2684.00
System Temperature 2 (°F):	180.00	Calcium (Ca):	30.52	Carbonate (CO3):	
System Pressure 2 (psig):	2000.00	Strontium (Sr):	6.47	Acetic Acid (CH3COO)	
Calculated Density (g/ml):	1.0081	Barium (Ba):	1.02	Propionic Acid (C2H5COO)	
pH:	8.70	Iron (Fe):	1.09	Butanoic Acid (C3H7COO)	
Calculated TDS (mg/L):	15659.01	Zinc (Zn):	6.88	Isobutyric Acid ((CH3)2CHCOO)	
CO2 in Gas (%):		Lead (Pb):	0.08	Fluoride (F):	
Dissolved CO2 (mg/L):	0.00	Ammonia NH3:		Bromine (Br):	
H2S in Gas (%):		Manganese (Mn):	0.14	Silica (SiO2):	
H2S in Water (mg/L):	35.00				

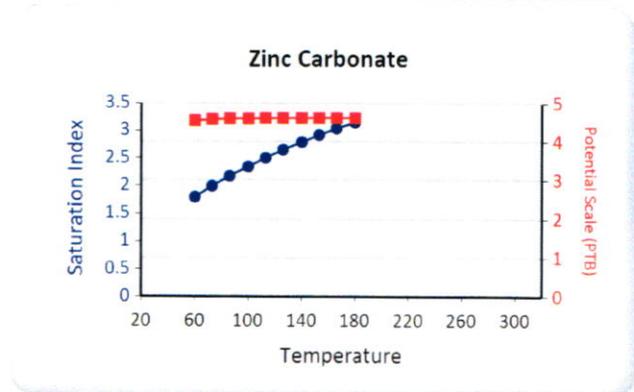
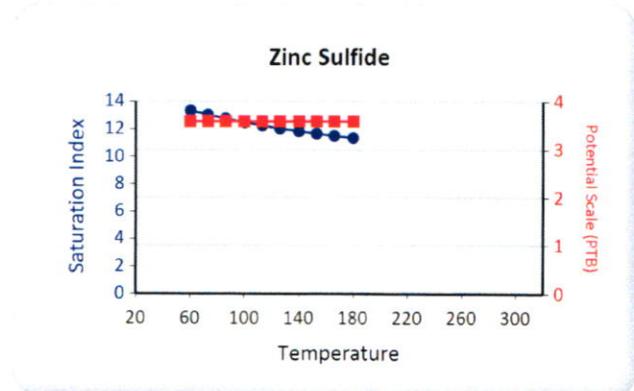
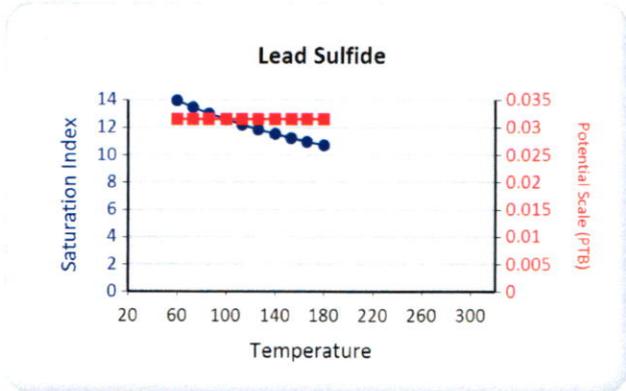
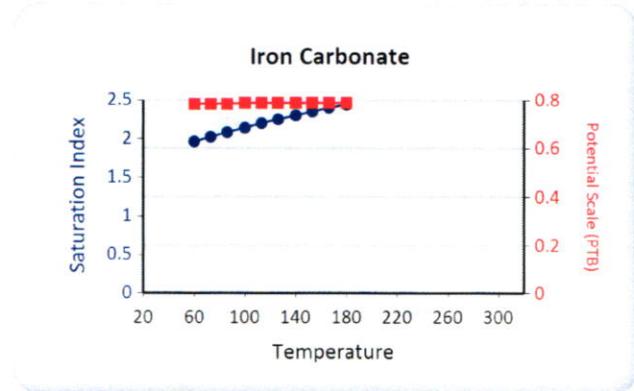
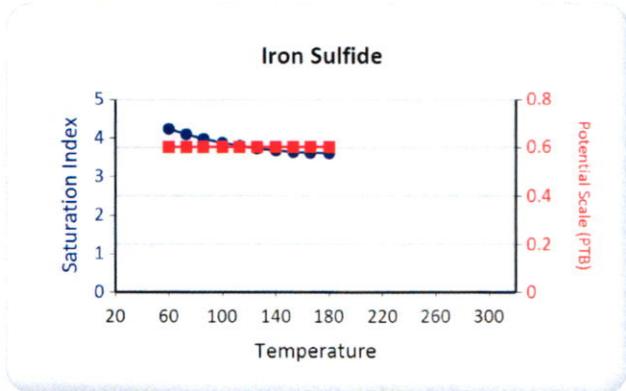
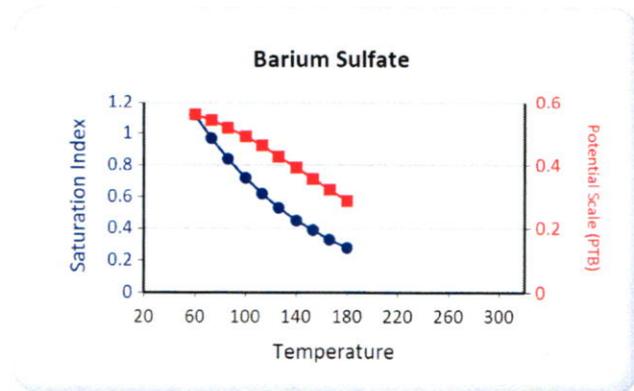
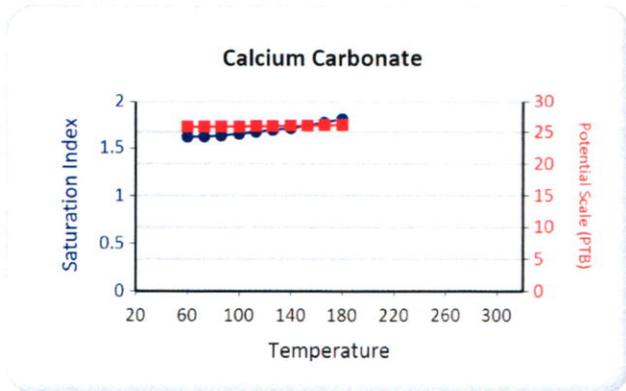
Notes:

(PTB = Pounds per Thousand Barrels)

Temp (°F)	PSI	Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4-2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.81	26.18	0.28	0.29	3.60	0.60	2.44	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.37	3.59
166	1779	1.77	26.13	0.33	0.32	3.61	0.60	2.40	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.52	3.59
153	1558	1.74	26.09	0.39	0.36	3.63	0.60	2.35	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.68	3.59
140	1338	1.71	26.05	0.45	0.39	3.67	0.60	2.30	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.86	3.59
126	1117	1.69	26.00	0.53	0.43	3.72	0.60	2.25	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.05	3.59
113	897	1.67	25.97	0.62	0.46	3.79	0.60	2.20	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.27	3.59
100	676	1.65	25.93	0.72	0.49	3.87	0.60	2.14	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.50	3.59
86	455	1.63	25.91	0.84	0.52	3.97	0.60	2.08	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.76	3.59
73	235	1.62	25.88	0.97	0.54	4.09	0.60	2.02	0.79	0.00	0.00	0.00	0.00	0.00	0.00	13.04	3.59
60	14	1.62	25.87	1.12	0.56	4.23	0.60	1.96	0.79	0.00	0.00	0.00	0.00	0.00	0.00	13.34	3.59

Temp (°F)	PSI	Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	3.15	4.62	10.72	0.03	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	3.04	4.62	10.97	0.03	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	2.92	4.62	11.24	0.03	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	2.79	4.62	11.54	0.03	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	2.65	4.62	11.86	0.03	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	2.50	4.61	12.21	0.03	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	2.34	4.61	12.60	0.03	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	2.17	4.60	13.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	1.99	4.58	13.46	0.03	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.00	1.79	4.55	13.95	0.03	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report



Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**
 Well Name: **UTE TRIBAL 34-12D3 SATELLITE, DUCHE**
 Sample Point: **PLANT DISCHARGE**
 Sample Date: **4/21/2015**
 Sample ID: **WA-307067**

Sales Rep: **James Patry**
 Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from
 Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations		Anions	
		mg/L		mg/L	
Test Date:	4/21/2015	Sodium (Na):	5277.36	Chloride (Cl):	7000.00
System Temperature 1 (°F):	60.00	Potassium (K):	65.03	Sulfate (SO ₄):	0.00
System Pressure 1 (psig):	14.70	Magnesium (Mg):	7.80	Bicarbonate (HCO ₃):	2196.00
System Temperature 2 (°F):	180.00	Calcium (Ca):	24.60	Carbonate (CO ₃):	
System Pressure 2 (psig):	2000.00	Strontium (Sr):	5.20	Acetic Acid (CH ₃ COO)	
Calculated Density (g/ml):	1.0073	Barium (Ba):	12.37	Propionic Acid (C ₂ H ₅ COO)	
pH:	8.50	Iron (Fe):	0.34	Butanoic Acid (C ₃ H ₇ COO)	
Calculated TDS (mg/L):	14589.98	Zinc (Zn):	1.16	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
CO ₂ in Gas (%):		Lead (Pb):	0.04	Fluoride (F):	
Dissolved CO ₂ (mg/L):	0.00	Ammonia NH ₃ :		Bromine (Br):	
H ₂ S in Gas (%):		Manganese (Mn):	0.08	Silica (SiO ₂):	
H ₂ S in Water (mg/L):	0.00				

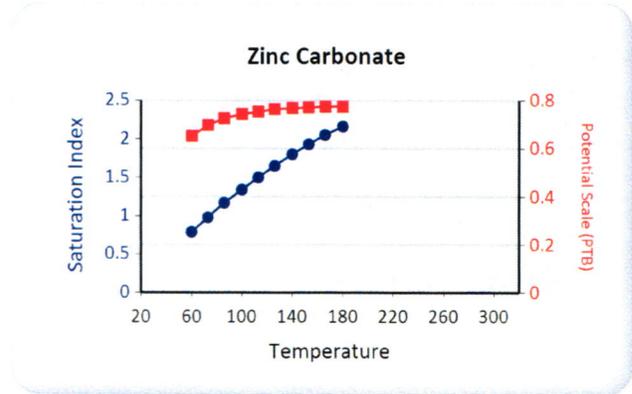
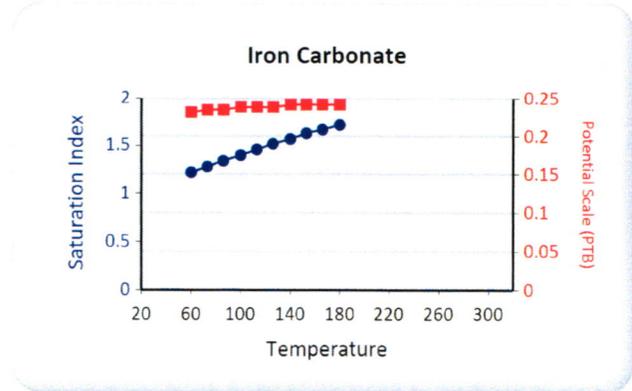
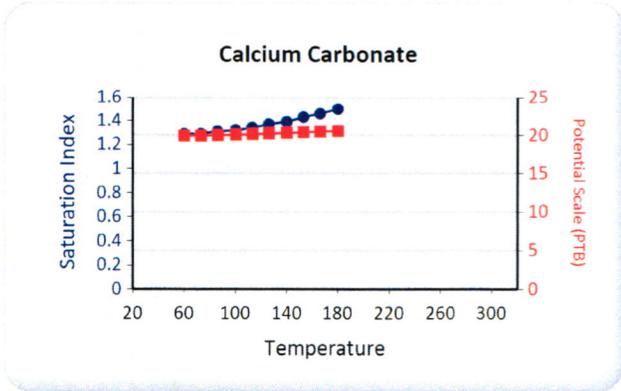
Notes:

(PTB = Pounds per Thousand Barrels)

Temp (°F)	PSI	Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.50	20.58	0.00	0.00	0.00	0.00	1.72	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	1.46	20.48	0.00	0.00	0.00	0.00	1.67	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	1.43	20.39	0.00	0.00	0.00	0.00	1.63	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	1.39	20.30	0.00	0.00	0.00	0.00	1.57	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	1.37	20.21	0.00	0.00	0.00	0.00	1.52	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	1.34	20.13	0.00	0.00	0.00	0.00	1.46	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	1.32	20.05	0.00	0.00	0.00	0.00	1.40	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	1.31	19.99	0.00	0.00	0.00	0.00	1.34	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	1.29	19.93	0.00	0.00	0.00	0.00	1.28	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	1.29	19.93	0.00	0.00	0.00	0.00	1.22	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Temp (°F)	PSI	Hemihydrate CaSO ₄ ·0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	2.16	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	1.65	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report



Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**
Well Name: **UTE TRIBAL 18-01 INJ, DUCHESNE**
Sample Point: **WELLHEAD**
Sample Date: **1/7/2015**
Sample ID: **WA-297509**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
Test Date:	1/14/2015	<i>Cations</i>		<i>Anions</i>	
System Temperature 1 (°F):	160		<i>mg/L</i>		<i>mg/L</i>
System Pressure 1 (psig):	1300	Sodium (Na):	3170.91	Chloride (Cl):	6000.00
System Temperature 2 (°F):	80	Potassium (K):	42.06	Sulfate (SO4):	73.00
System Pressure 2 (psig):	15	Magnesium (Mg):	16.52	Bicarbonate (HCO3):	1830.00
Calculated Density (g/ml):	1.0046	Calcium (Ca):	28.33	Carbonate (CO3):	
pH:	8.30	Strontium (Sr):	5.78	Acetic Acid (CH3COO)	
Calculated TDS (mg/L):	11210.00	Barium (Ba):	15.68	Propionic Acid (C2H5COO)	
CO2 in Gas (%):		Iron (Fe):	2.67	Butanoic Acid (C3H7COO)	
Dissolved CO2 (mg/L):	0.00	Zinc (Zn):	2.91	Isobutyric Acid ((CH3)2CHCOO)	
H2S in Gas (%):		Lead (Pb):	0.06	Fluoride (F):	
H2S in Water (mg/L):	5.00	Ammonia NH3:		Bromine (Br):	
		Manganese (Mn):	0.13	Silica (SiO2):	21.95

Notes:

B=6.11 Al=.02 Li=1.73

(PTB = Pounds per Thousand Barrels)

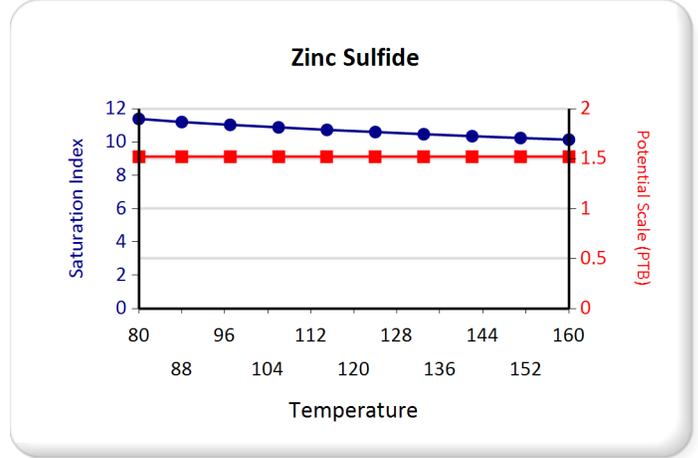
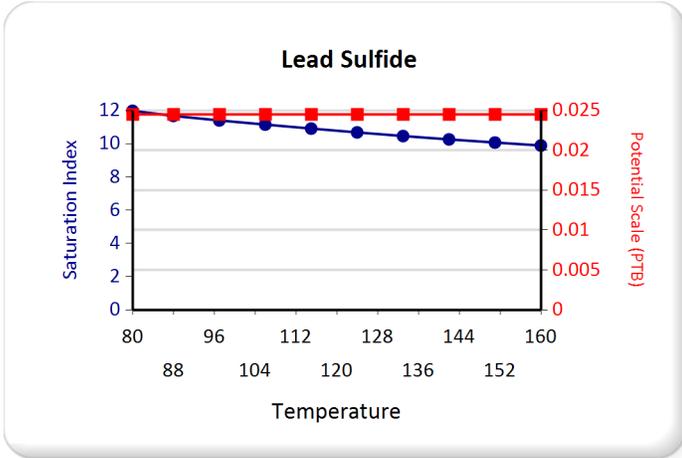
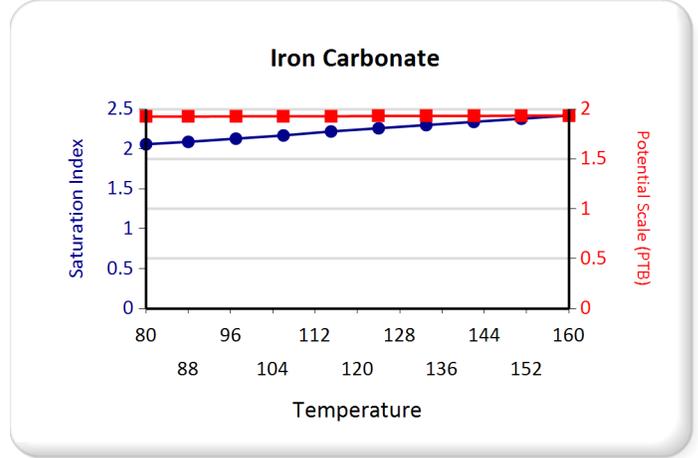
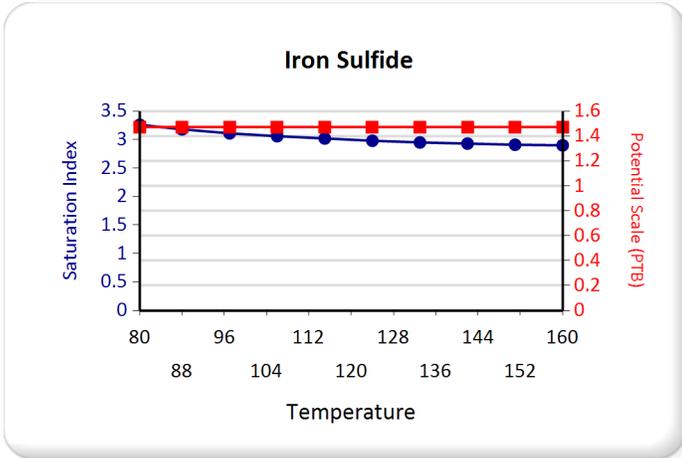
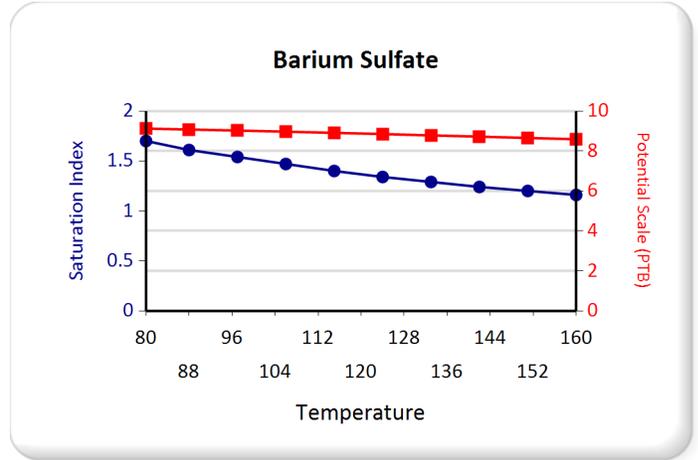
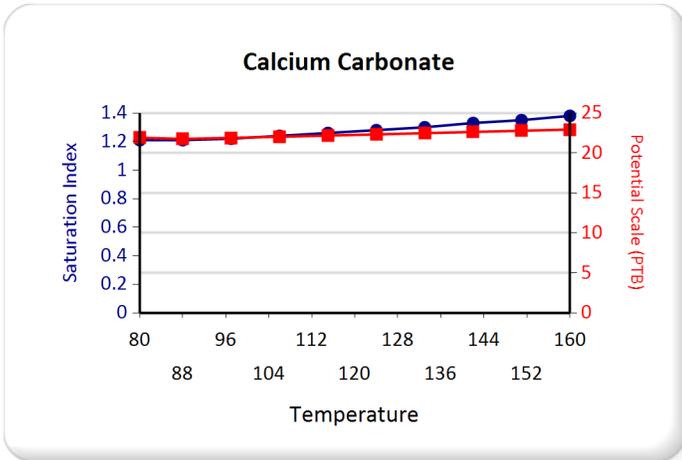
Temp (°F)	PSI	Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.21	21.91	1.70	9.12	3.26	1.47	2.06	1.92	0.00	0.00	0.00	0.00	0.00	0.00	11.39	1.52
88.00	157.00	1.21	21.76	1.61	9.07	3.18	1.47	2.09	1.92	0.00	0.00	0.00	0.00	0.00	0.00	11.20	1.52
97.00	300.00	1.22	21.89	1.54	9.02	3.11	1.47	2.13	1.93	0.00	0.00	0.00	0.00	0.00	0.00	11.03	1.52
106.00	443.00	1.24	22.03	1.47	8.97	3.06	1.47	2.17	1.93	0.00	0.00	0.00	0.00	0.00	0.00	10.88	1.52
115.00	585.00	1.26	22.18	1.40	8.91	3.02	1.47	2.22	1.93	0.00	0.00	0.00	0.00	0.00	0.00	10.73	1.52
124.00	728.00	1.28	22.32	1.34	8.85	2.98	1.47	2.26	1.93	0.00	0.00	0.00	0.00	0.00	0.00	10.60	1.52
133.00	871.00	1.30	22.48	1.29	8.78	2.95	1.47	2.30	1.93	0.00	0.00	0.00	0.00	0.00	0.00	10.47	1.52
142.00	1014.00	1.33	22.63	1.24	8.72	2.93	1.47	2.34	1.93	0.00	0.00	0.00	0.00	0.00	0.00	10.35	1.52
151.00	1157.00	1.35	22.78	1.20	8.65	2.91	1.47	2.38	1.93	0.00	0.00	0.00	0.00	0.00	0.00	10.24	1.52
160.00	1300.00	1.38	22.93	1.16	8.59	2.90	1.47	2.42	1.93	0.00	0.00	0.00	0.00	0.00	0.00	10.14	1.52

Temp (°F)	PSI	Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	1.86	11.98	0.02	0.45	2.92	0.00	0.00	6.82	2.06
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	1.88	11.67	0.02	0.70	4.20	0.00	0.00	6.91	2.06
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57	1.90	11.40	0.02	1.07	6.19	0.09	0.87	7.12	2.06
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	1.91	11.15	0.02	1.45	8.16	0.29	2.09	7.34	2.07
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79	1.92	10.91	0.02	1.83	10.09	0.50	3.30	7.56	2.07
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	1.93	10.68	0.02	2.22	11.98	0.71	4.48	7.80	2.07
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.93	10.46	0.02	2.61	13.81	0.92	5.63	8.05	2.07
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	1.94	10.26	0.02	3.00	15.58	1.14	6.73	8.30	2.07
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	1.94	10.07	0.02	3.39	17.26	1.36	7.77	8.56	2.08
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28	1.95	9.89	0.02	3.78	18.83	1.58	8.73	8.82	2.08

Water Analysis Report

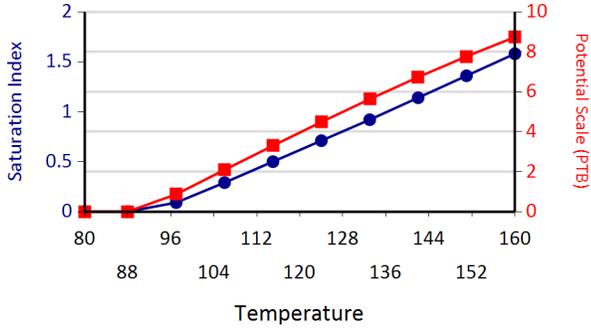
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

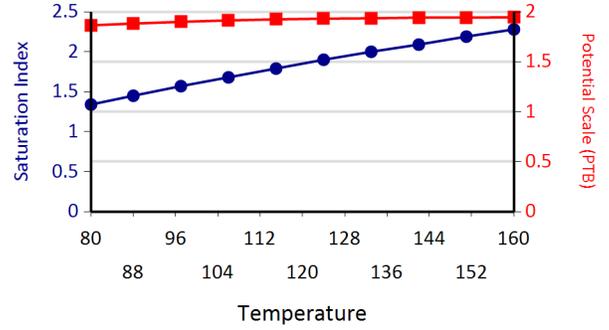


Water Analysis Report

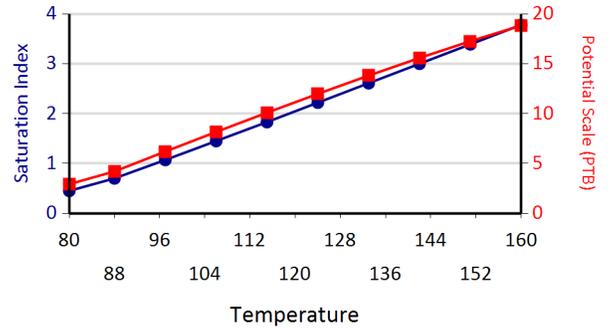
Ca Mg Silicate



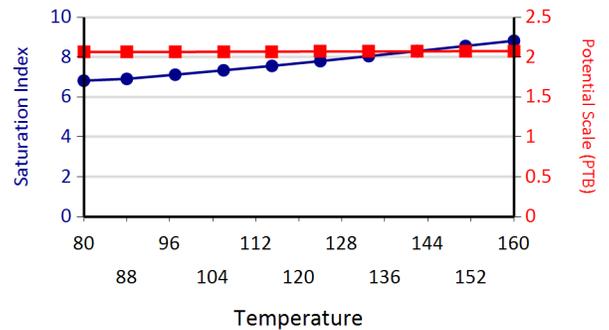
Zinc Carbonate



Mg Silicate



Fe Silicate



ATTACHMENT NO. 6

COMPLETION DATA FOR ALL WELLS IN THE AOR

Well Completion Data

Ute Tribal 17-04

Well	Surface Casing				Production Casing			
	Size (inches)	Depth (ft KB)	Cement Amount (sx)	Cement Top	Size (inches)	Depth (ft KB)	Cement Amount (sx)	Estimated Cement Top
Ute Tribal 17-04	8-5/8	414	350	surface	5-1/2	5822	495	1796
Ute Tribal 08-14	8-5/8	537	360	surface	5-1/2	6073	1000	surface
Ute Tribal 17-03	8-5/8	552	350	surface	5-1/2	5968	900	surface
Ute Tribal 17-05	8-5/8	402	250	surface	5-1/2	6106	355	3030
Ute Tribal 17-05A	8-5/8	522	450	surface	5-1/2	5890	790	surface
Ute Tribal 18-01	8-5/8	414	250	surface	5-1/2	6293	1450	surface

ATTACHMENT NO. 7

CBL FOR THE UIC WELL

Schlumberger

Cement Bond Log

COMPANY PETROGLYPH OPERATING CO

WELL UTE TRIBAL#4-17

FIELD ANTELOPE CREEK

COUNTY DUCHESENE STATE UTAH

Location NW/NE
59/1W1
6/6/1W1

API-Serial No. 43013 51464

Sect. 1/7

Temp. 55

Range SW

Other Services:
THANK YOU!!!

County DUCHESENE
Field ANTELOPE CREEK
Location NW NW
Well UTE TRIBAL#4-17
Company PETROGLYPH OPERATING CO.

Permanent Datum 611 Elev. 5910
Log Measured From KH KH 10 above Perm. Datum
Drilling Measured From KH KH

Elev. K.B. 59320
D.F. 5919
G.L. 5910

Date 11/28/94

Casing Fluid
Fluid Level
WALLER/KCI

Run No. 1

Max. Rec. Temp. 101.1

Depth-Driller 5830

Est. Cement Top 1/96

Depth-Logger 5/65

Unit District 128 VERNAL

Btn. Log Interval 5/64

Recorded By RANDI STOCKLEY

Top Log Interval 7500

Witnessed By DAN LINDSEY

Open Hole Size 1/8"

Top Bottom

CASING REC.	Size	Wt/Ft	Grade	Type Joint	Top	Bottom
Surface String						
Prod. String	5.5	15.5			SURFACE	110
Prod. String						
Liner						

PRIMARY CEMENTING DATA

STRING	Surface	Protection	Production	Liner
Vol. of Cement				
Type of Cement				
Additive				
Retarder				
Wt. of slurry				
Water loss				
Type fluid in csg.				
Fluid wt.				

REMARKS

TIE-IN TO OH SWS 10-22-94
SHORT JOINT AT 4042-4054

THANK-YOU FOR USING SCHLUMBERGER!

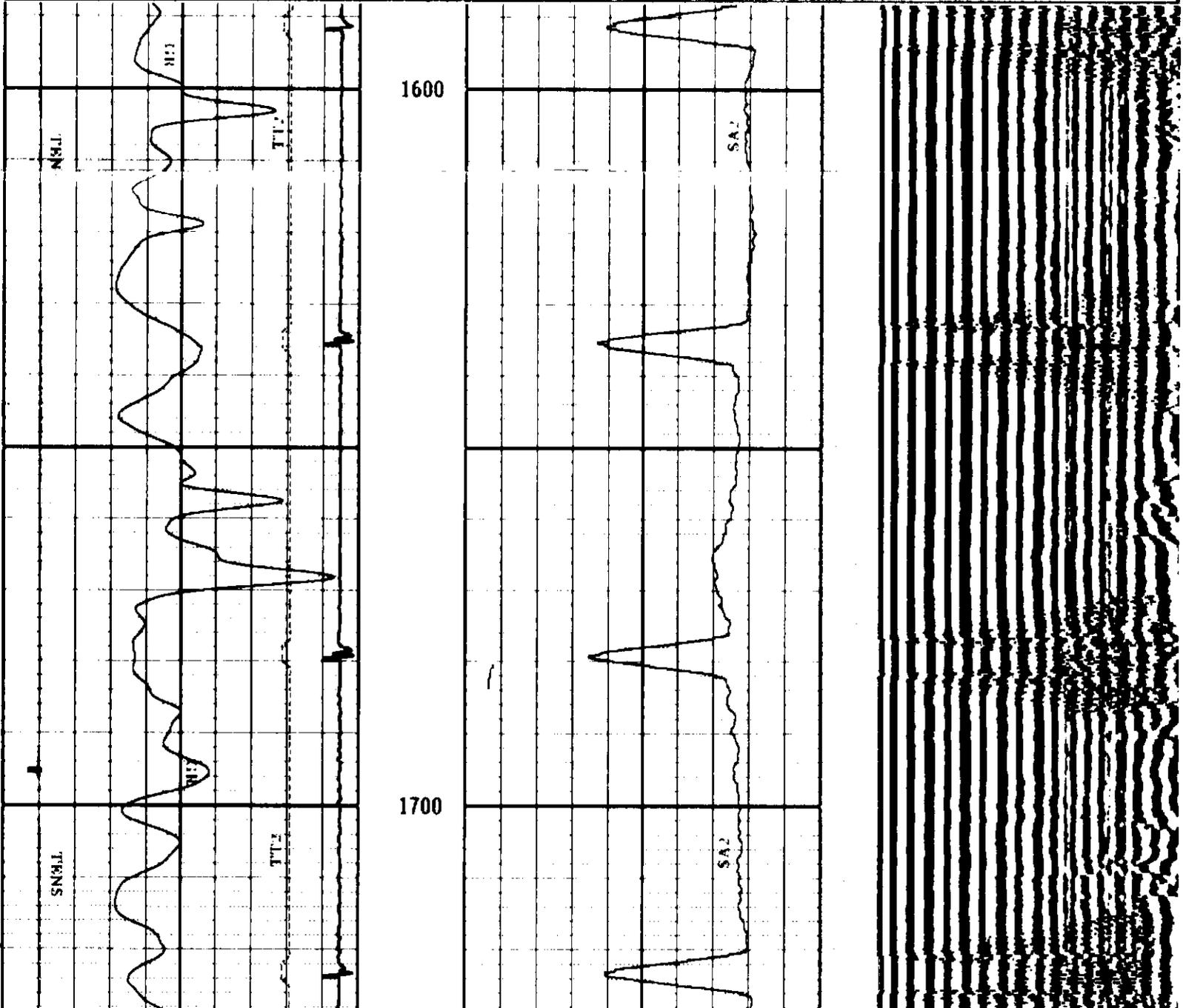
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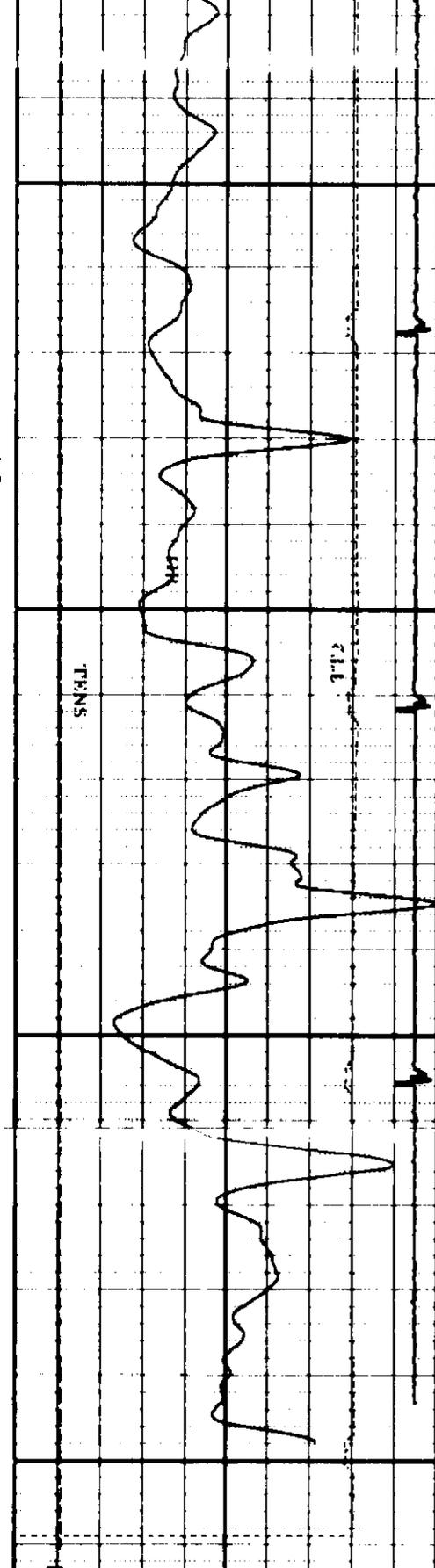
Pass No
Job Name

5
UTE-7-14

SCALE CHANGE REPORT
NO SCALE CHANGES THIS FILE

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0	TENS	4000			
			200	VDI	1200

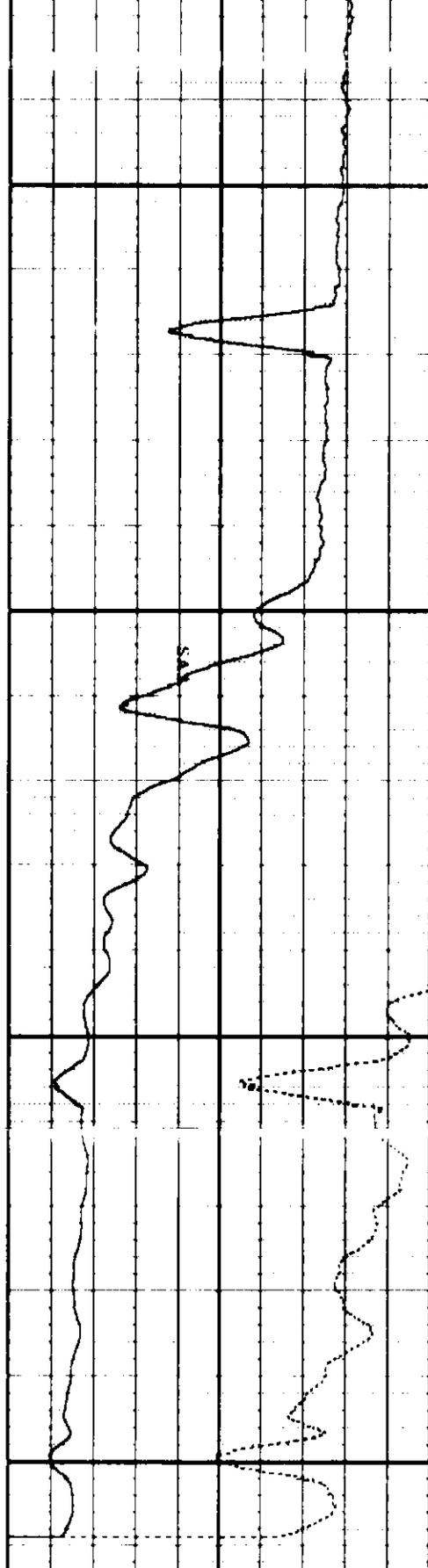




TGS

1800

1900



A2D

-250	CCI	250
0	GR	150
420	TT2	220
0	TENS	4000

0	ASA2	20
0	SA2	100

200	VDL	1200
-----	-----	------

Film Scale 5 in = 100 feet (5 inch)

Sensor Measure Point to Tool Zero

SLTJFREC	3.5	ft.
SLTJNREC	4.5	ft.
SGTGGR	15.5	ft.
CCL-AJ	20.2	ft.
TENS	0.0	ft.
SPEED	0.0	ft.

Software Version UX124

Logging Pass Start Depth 5770.4 ft

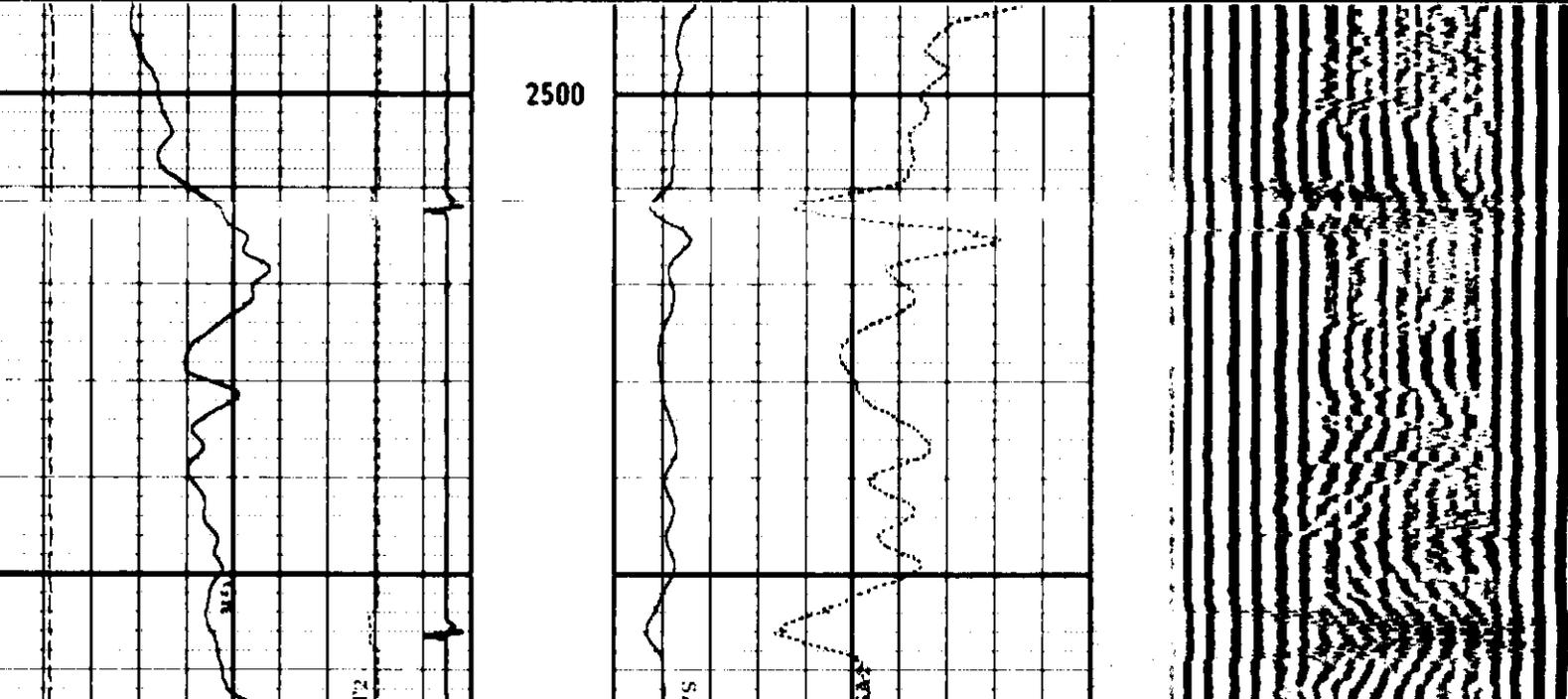
Logging Pass Stop Depth 2490.8 ft.

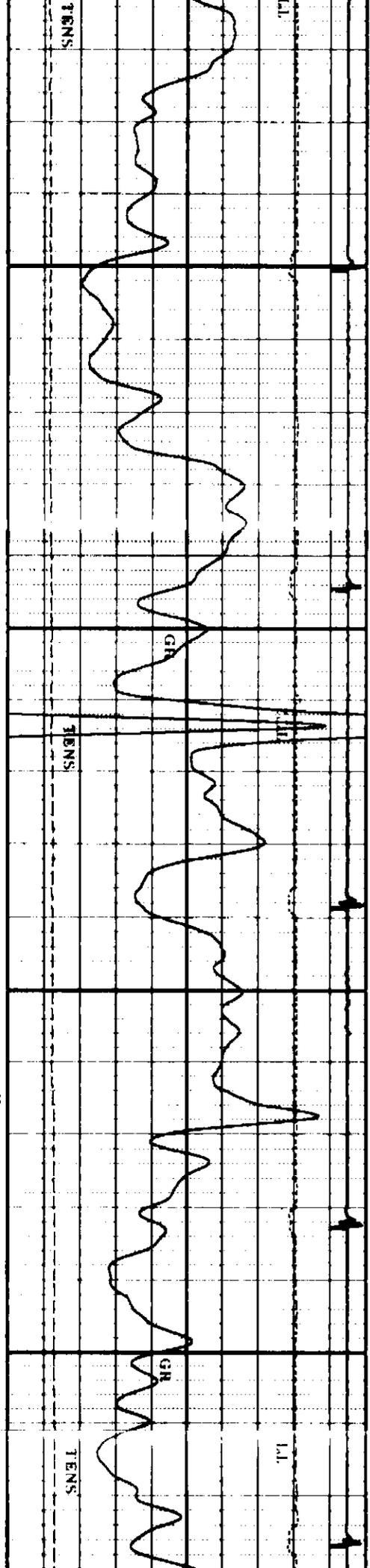
Pass No 3

Job Name UTE-7-14

SCALE CHANGE REPORT
NO SCALE CHANGES THIS FILE

			<i>main Pass</i>		
-250	CCL	250	0	ASA2	20
0	GR	150	0	SA2	100
420	TT2	220			
0	TENS	4000			
			200	VDI	1200

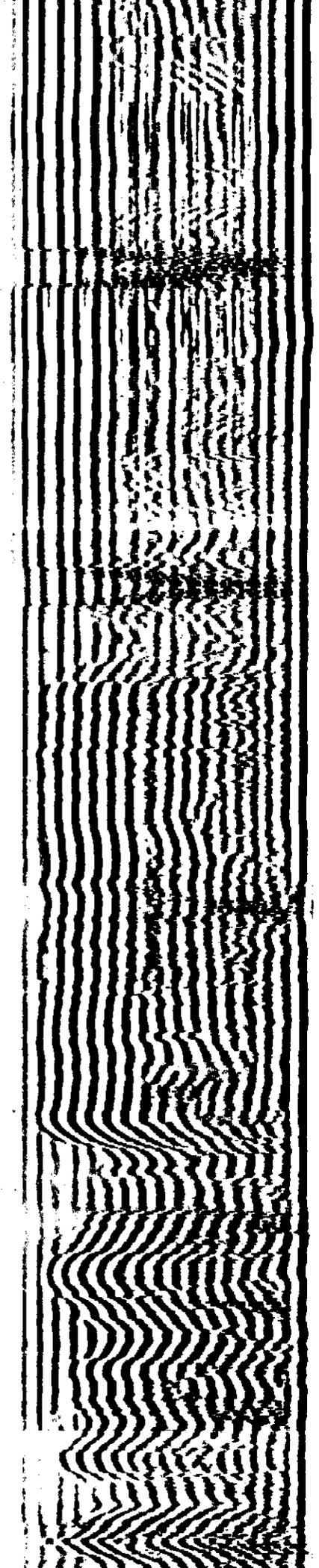
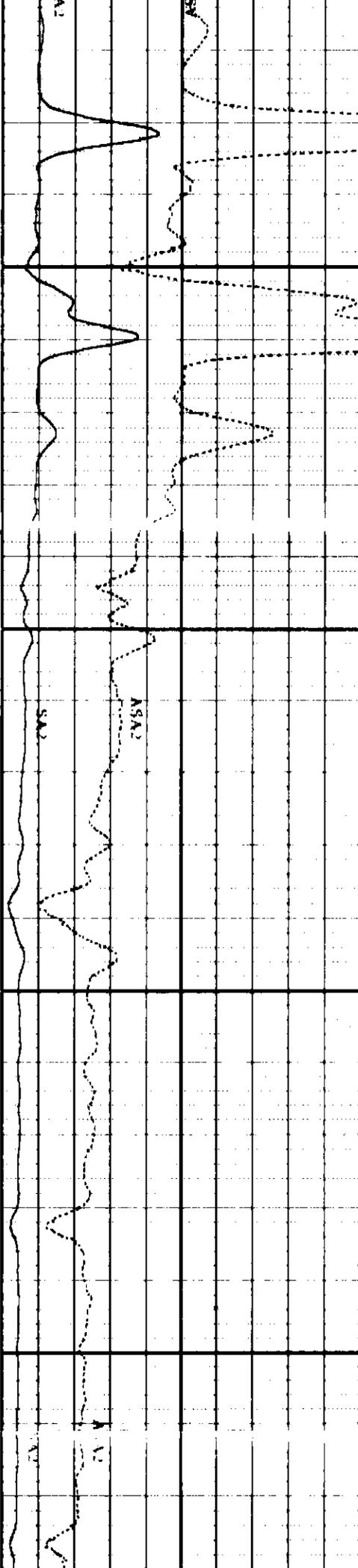


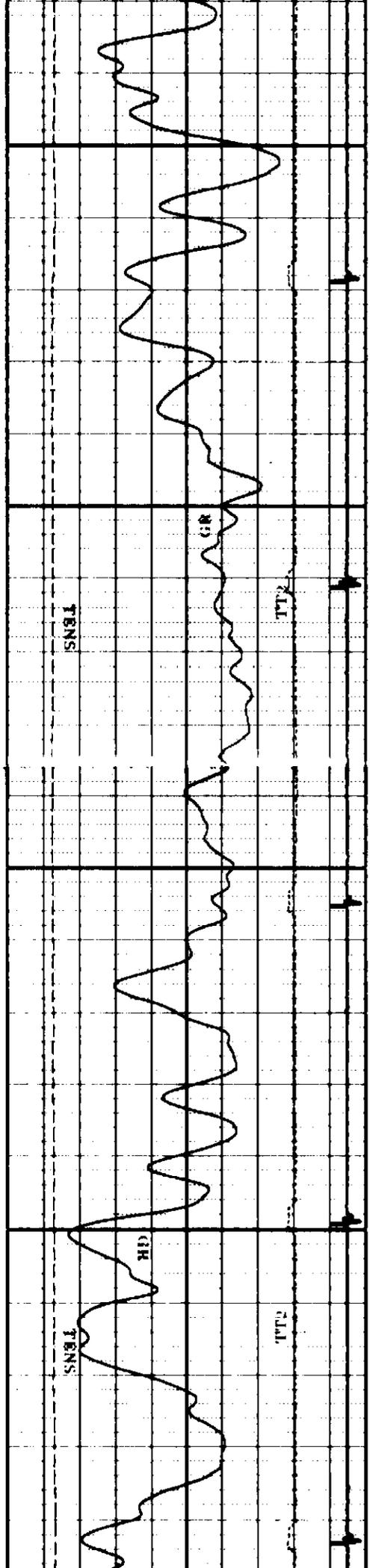


2600

TGS

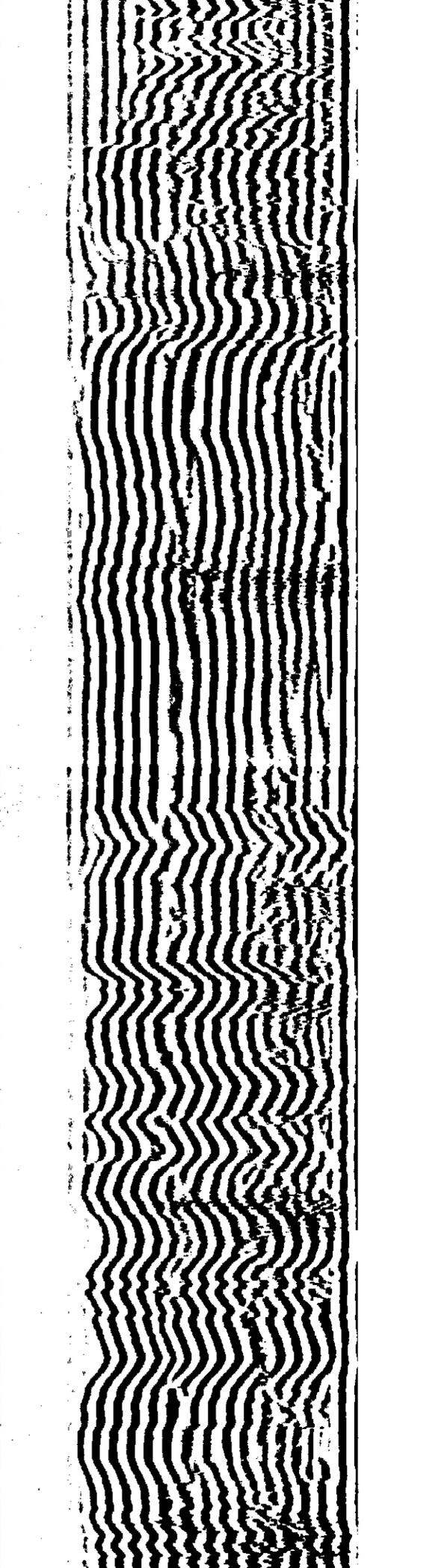
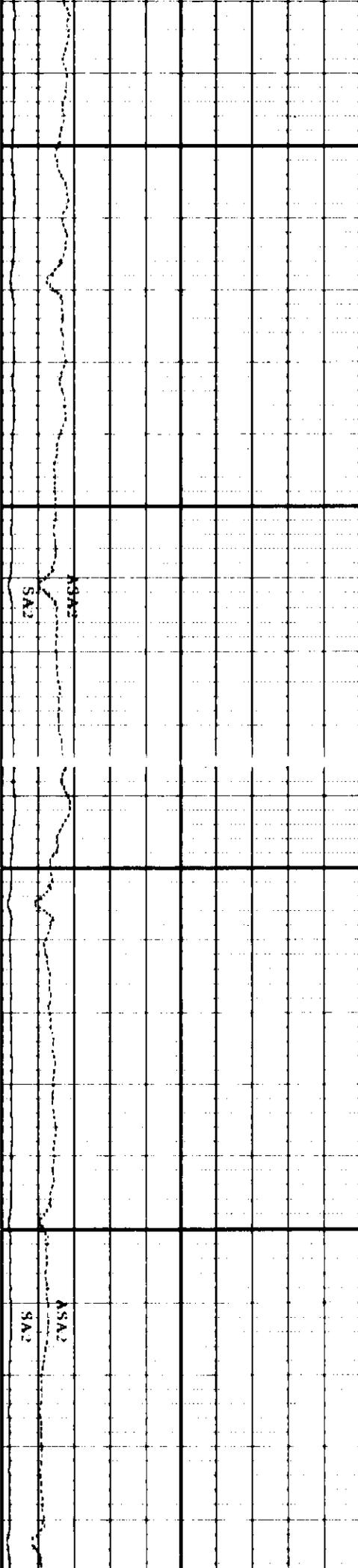
2700





2800

2900



3000

3100

3200

TENS

TTP2

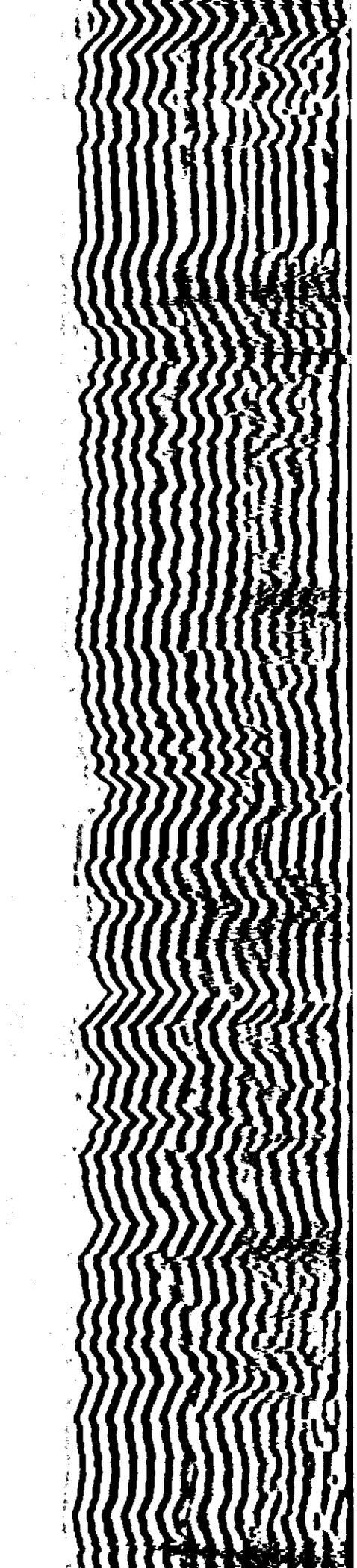
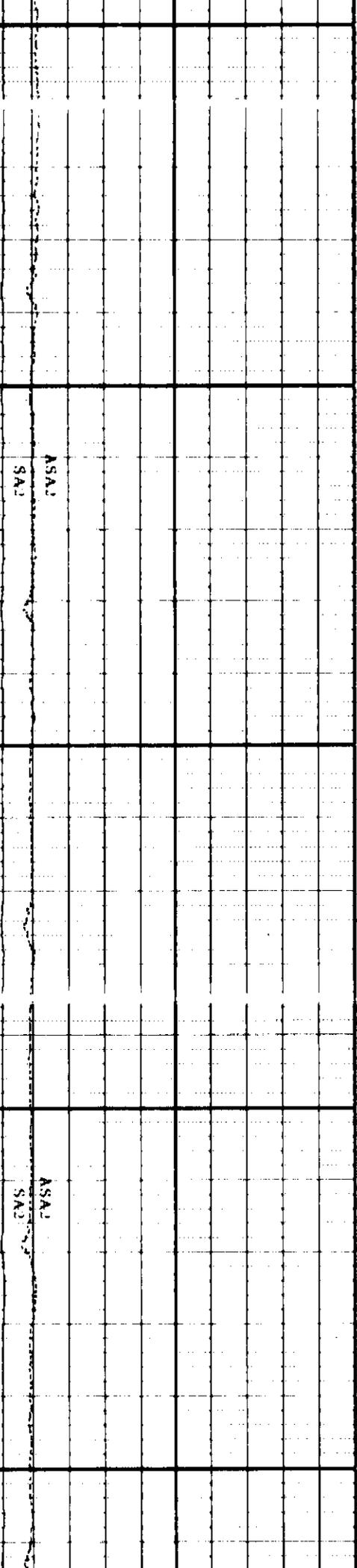
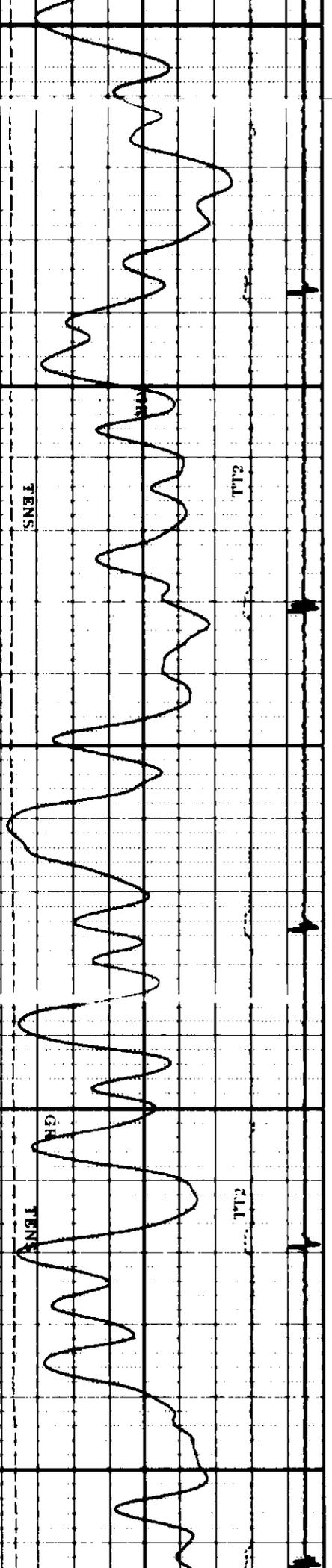
ASAJ
SAC

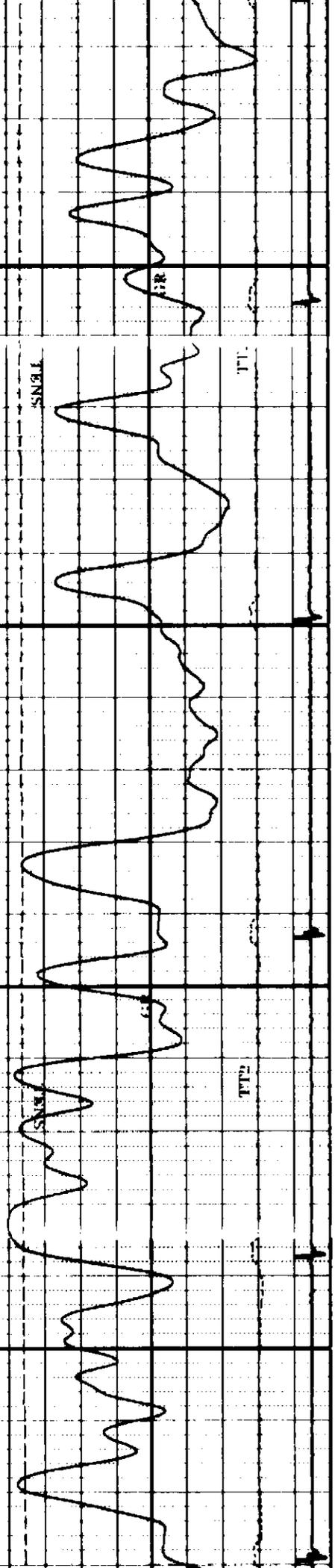
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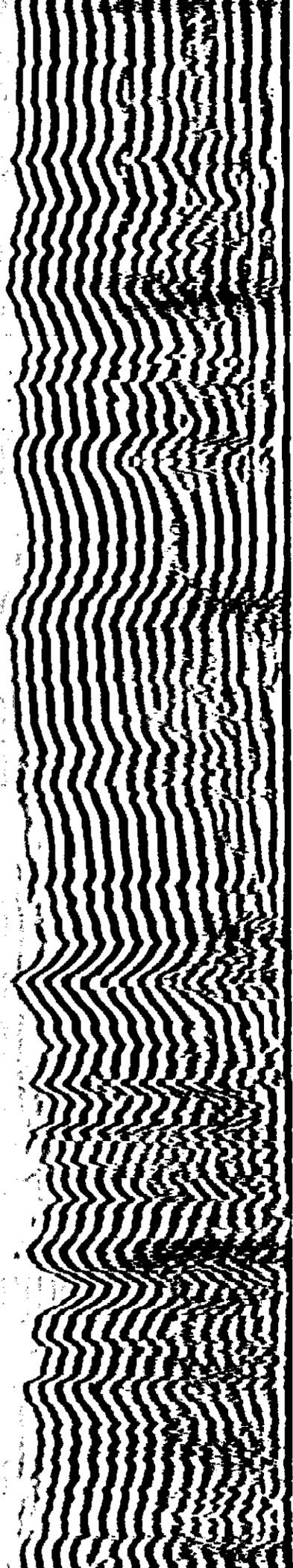
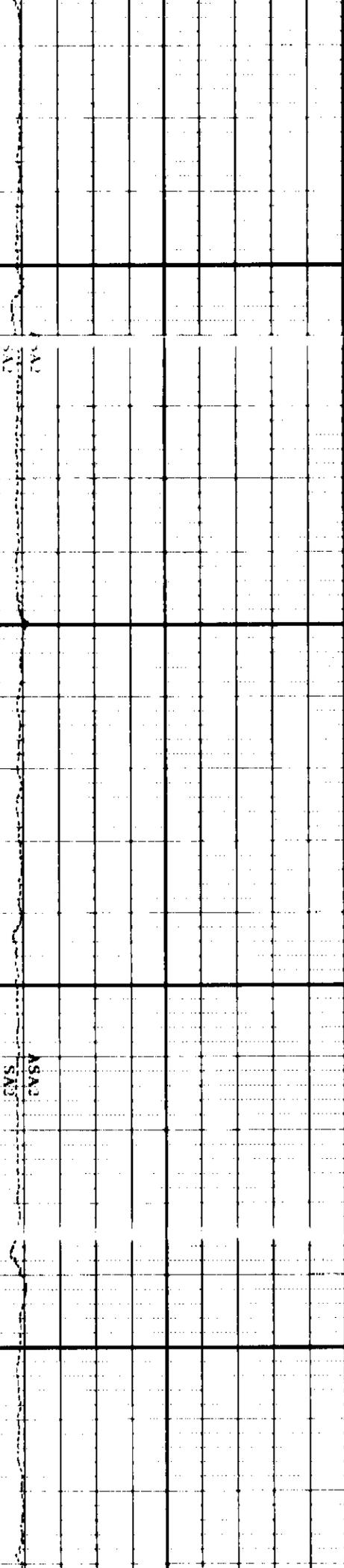
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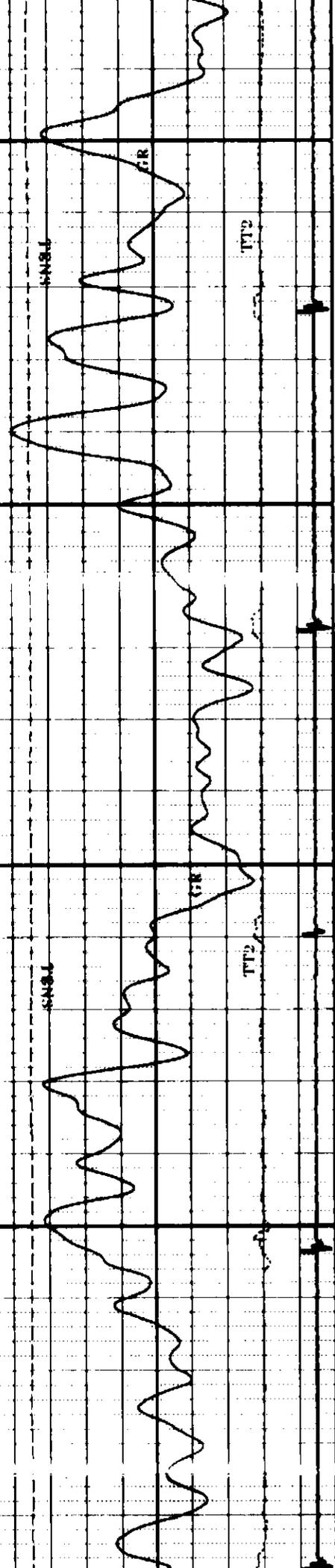




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3400



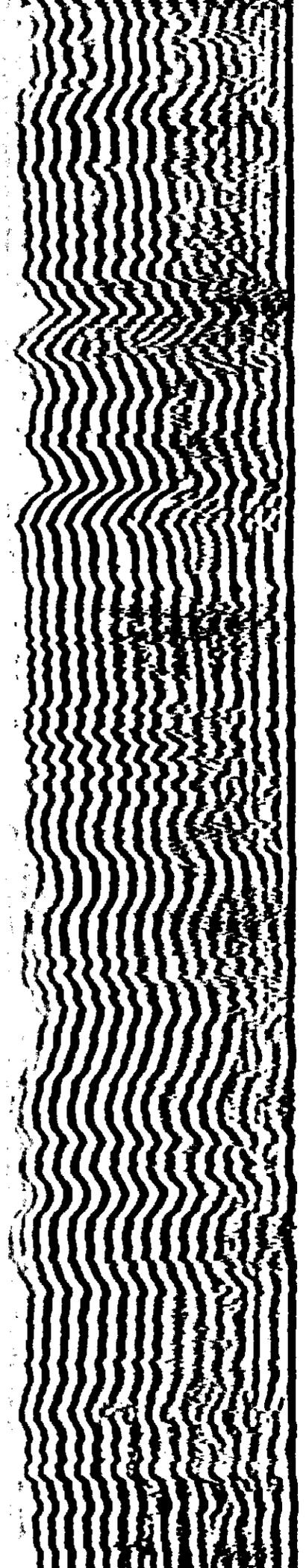


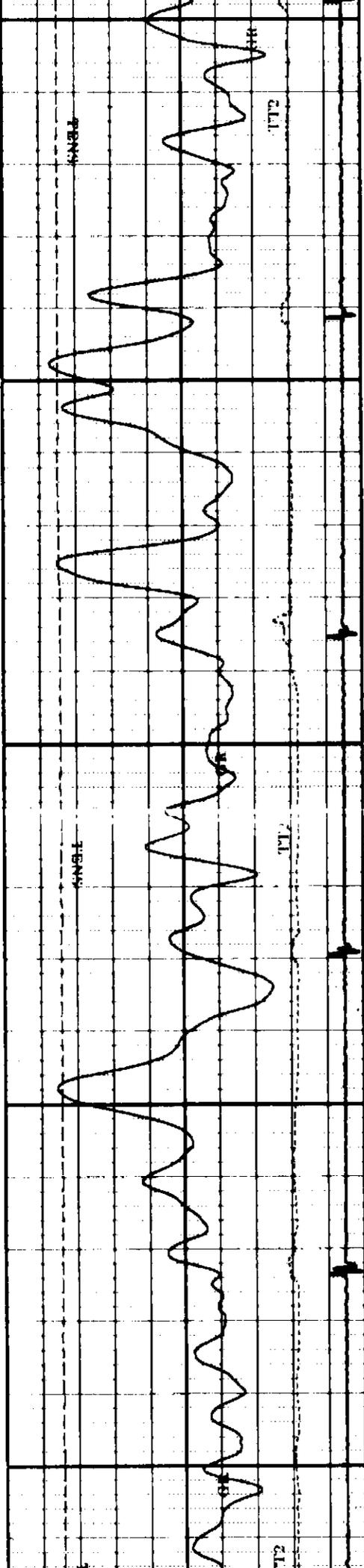
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3600

ASAC
SAC

ASAC
SAC

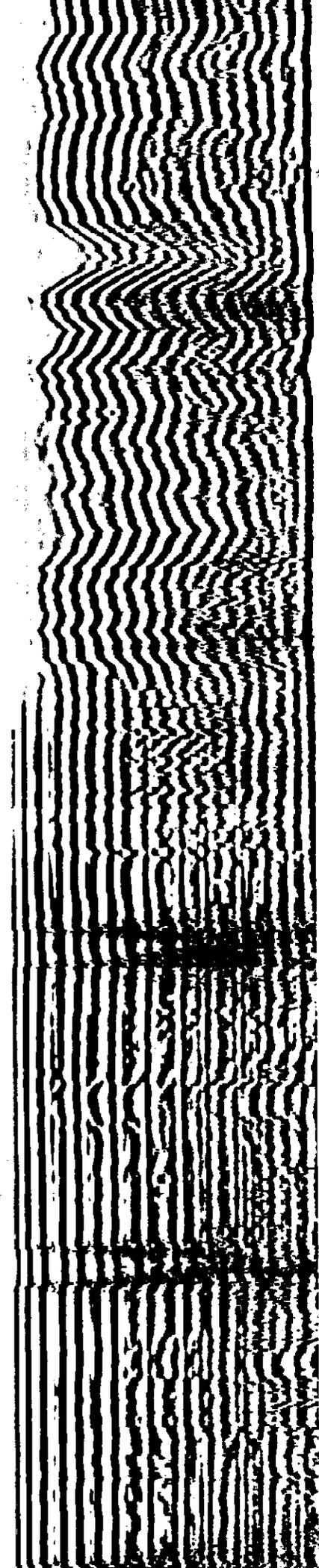
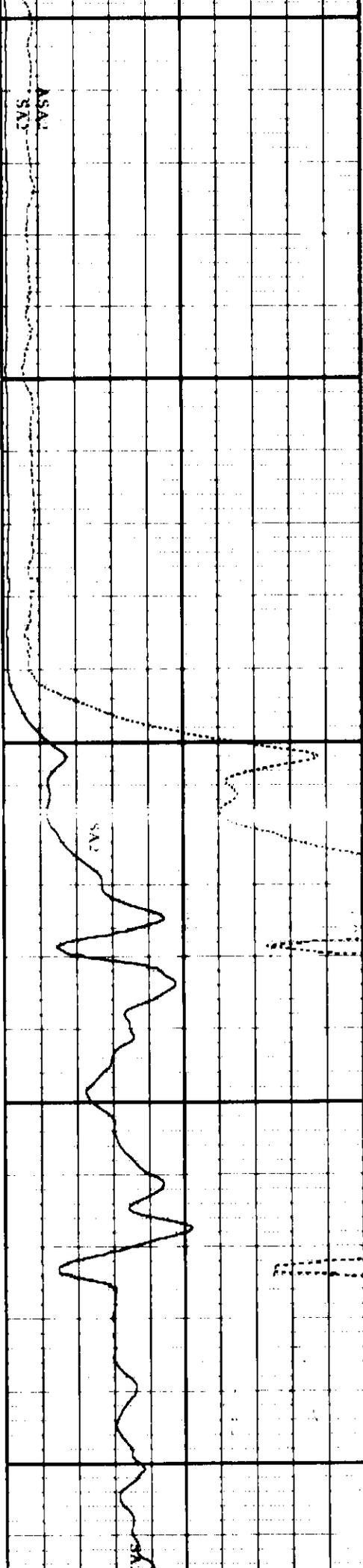




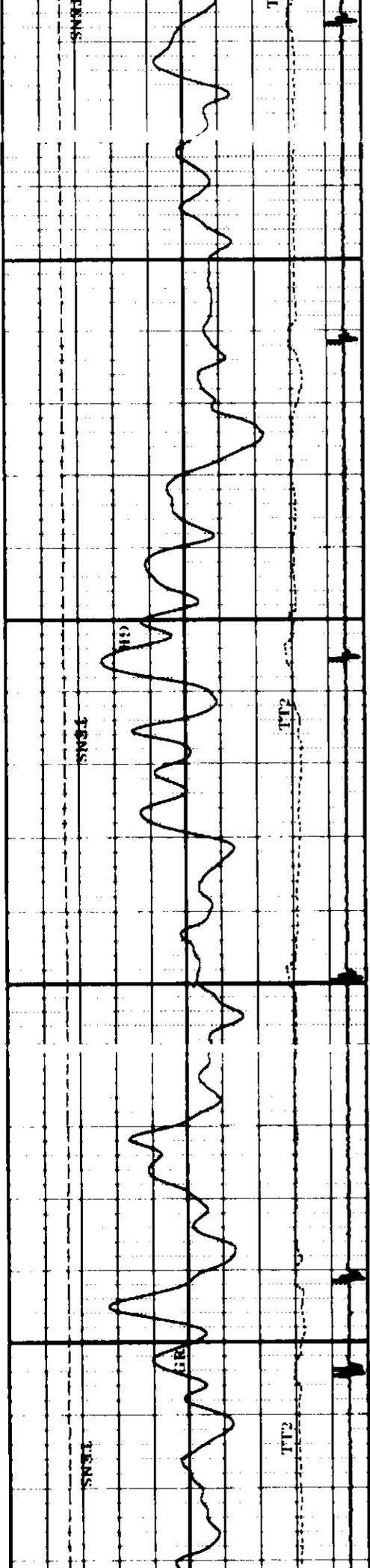
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3700

3800

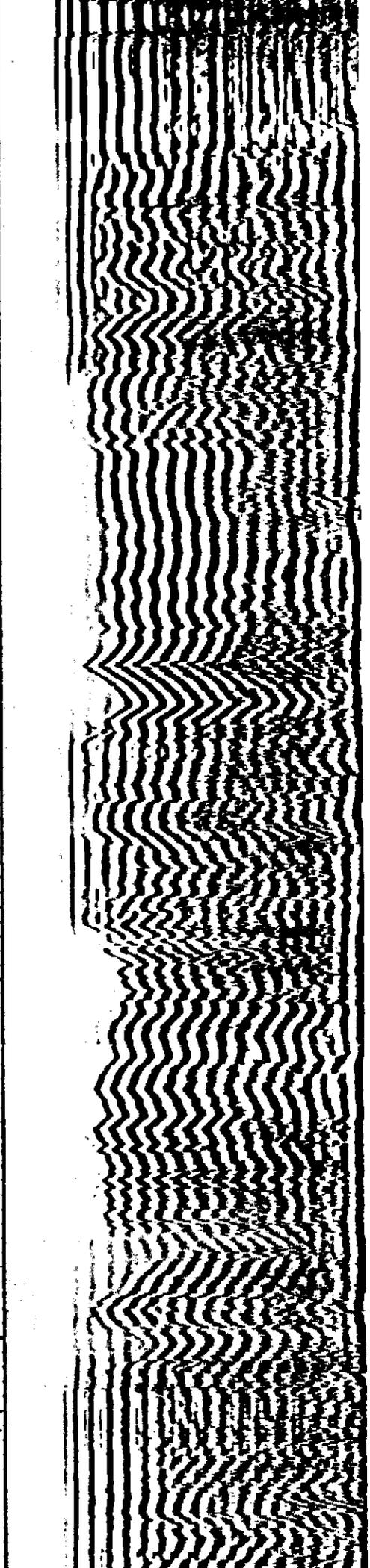
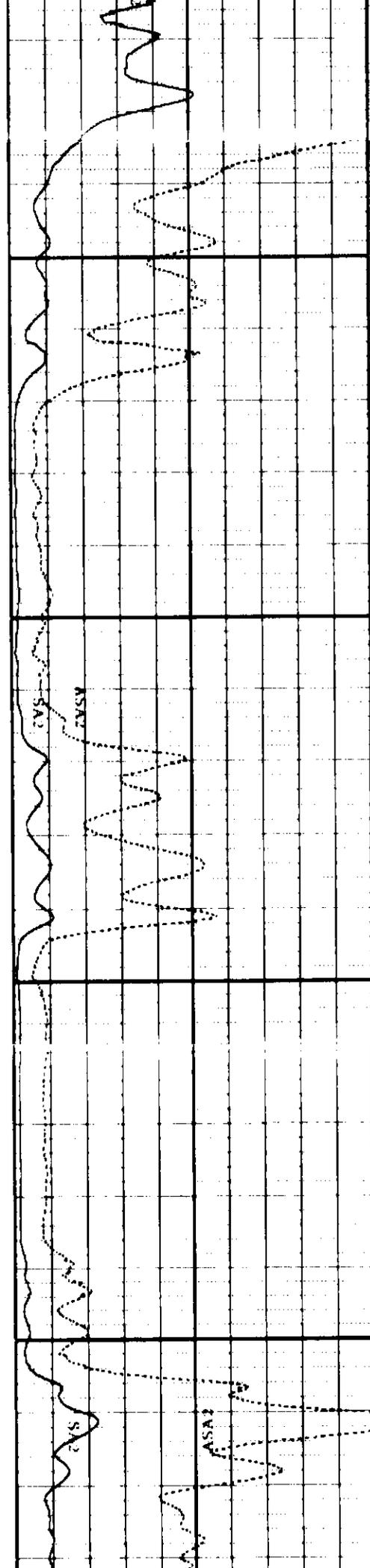


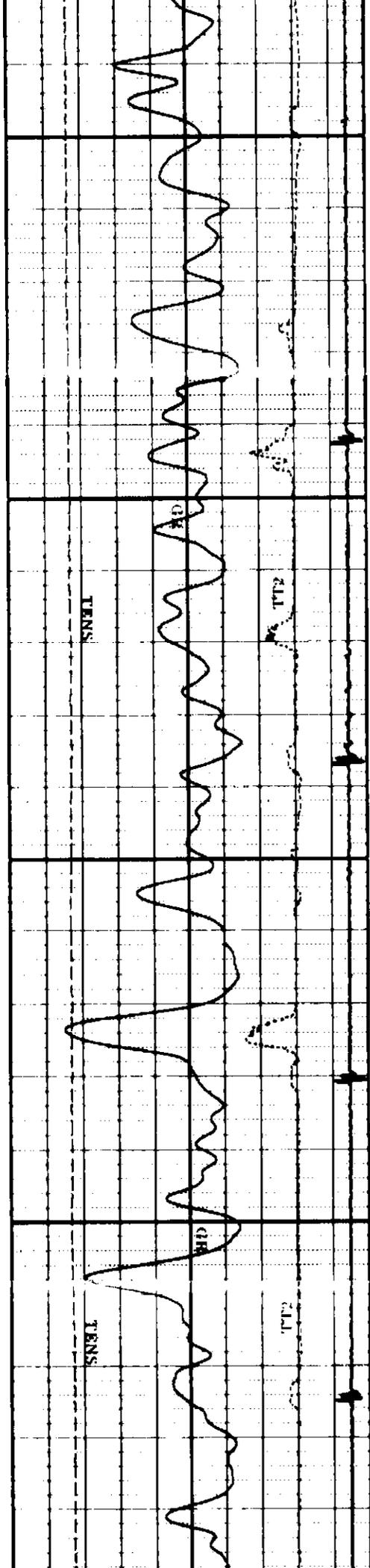
A2D



3900

4000

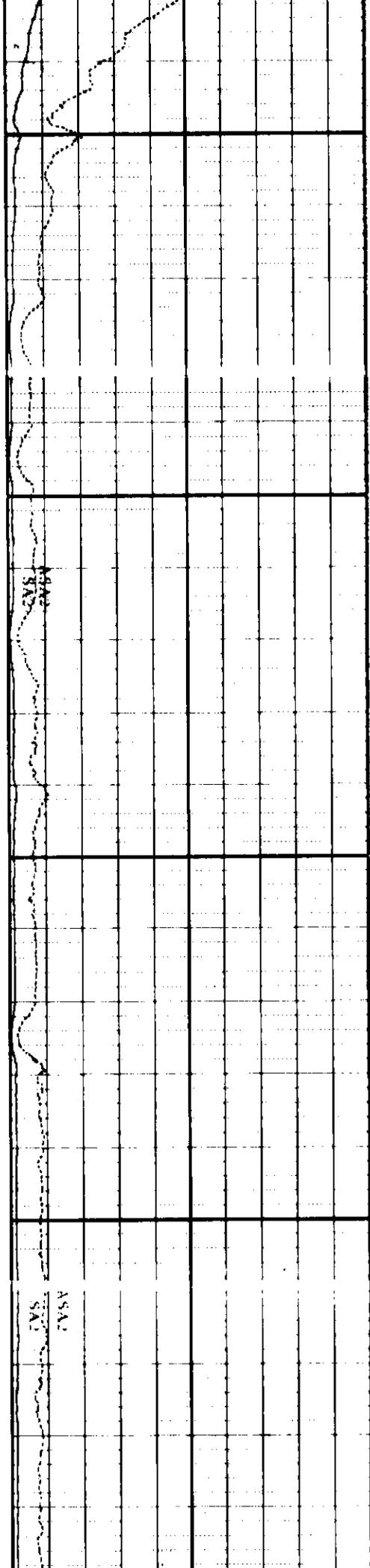




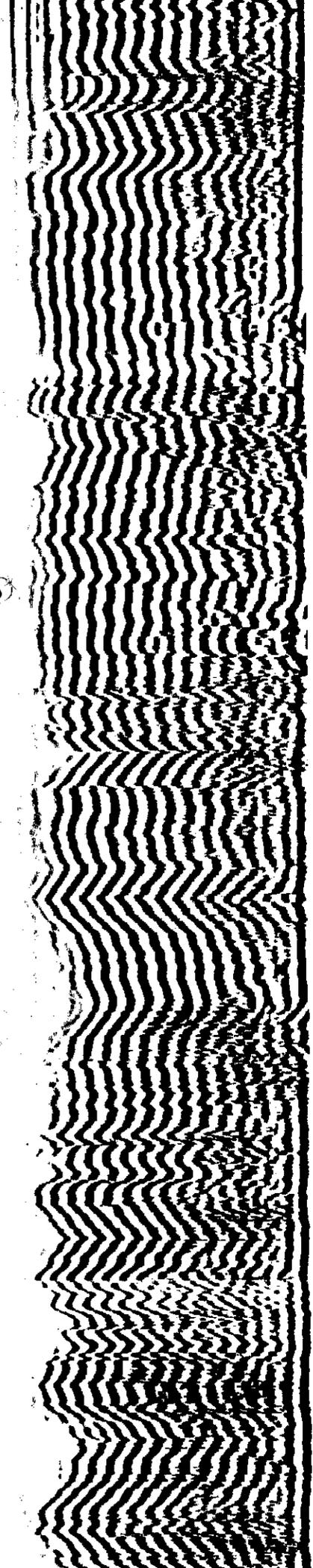
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TGS

4200



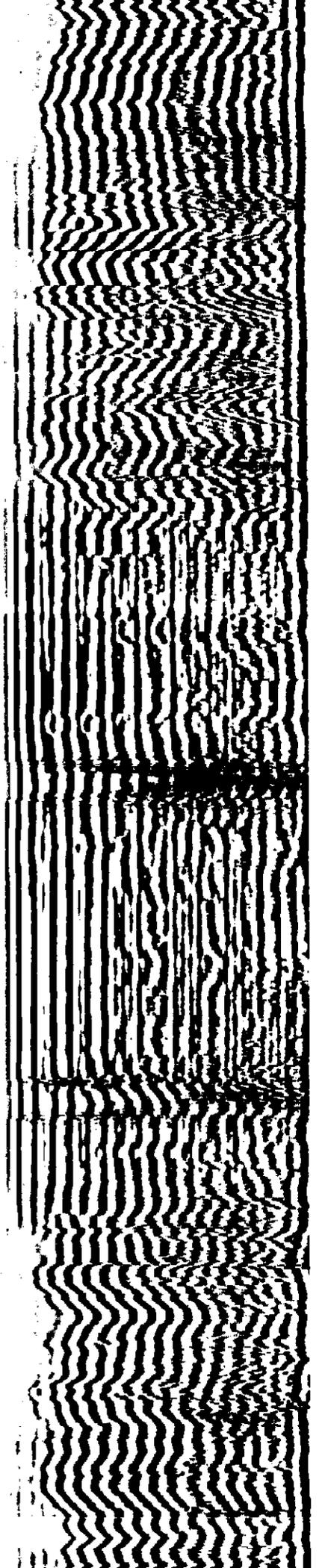
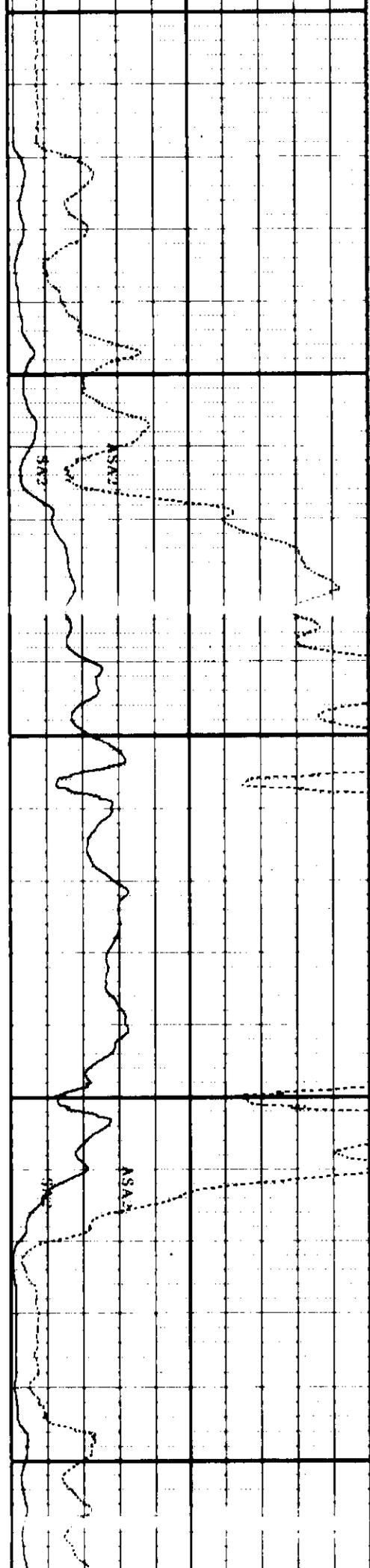
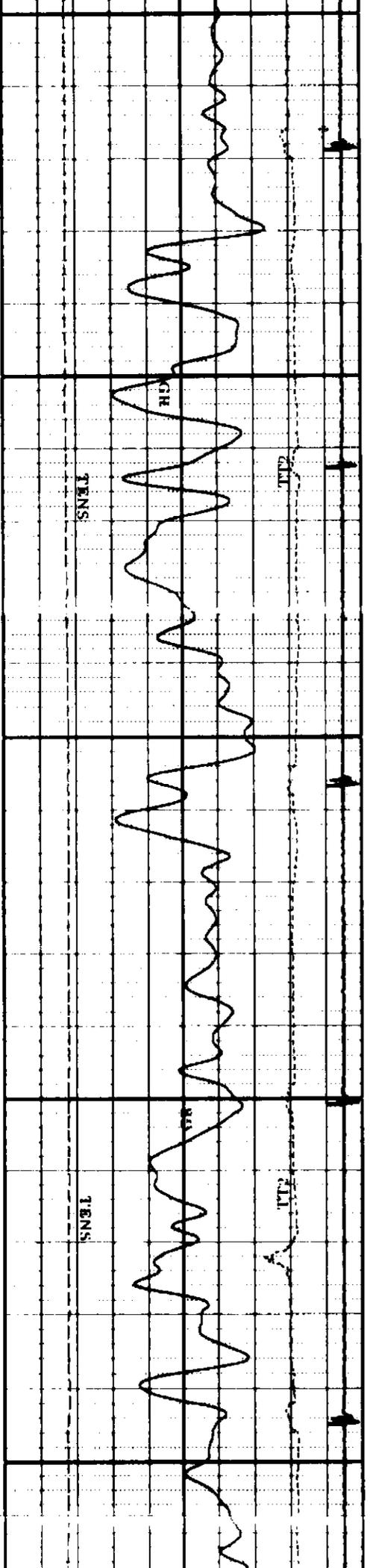
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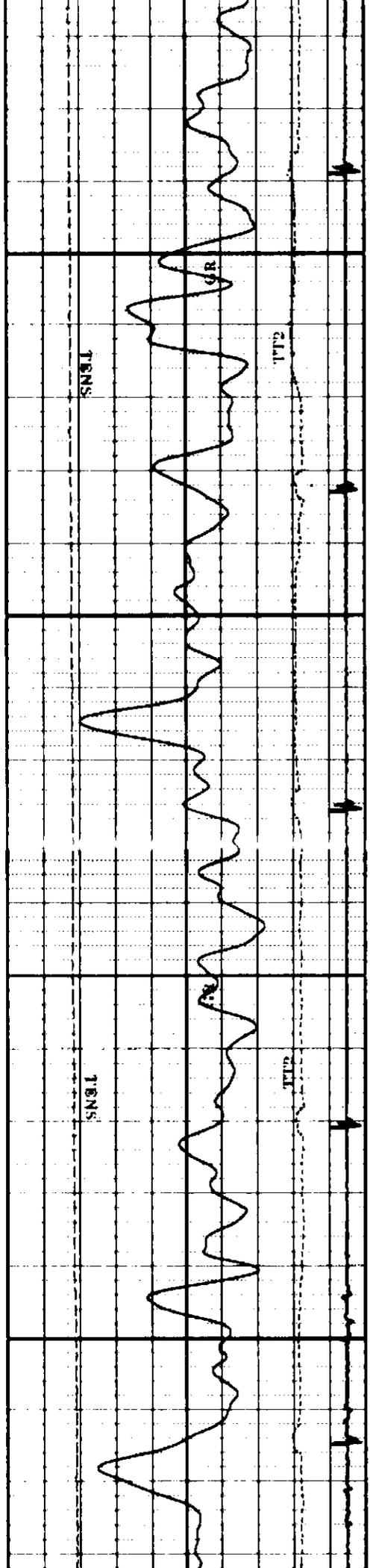


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4400

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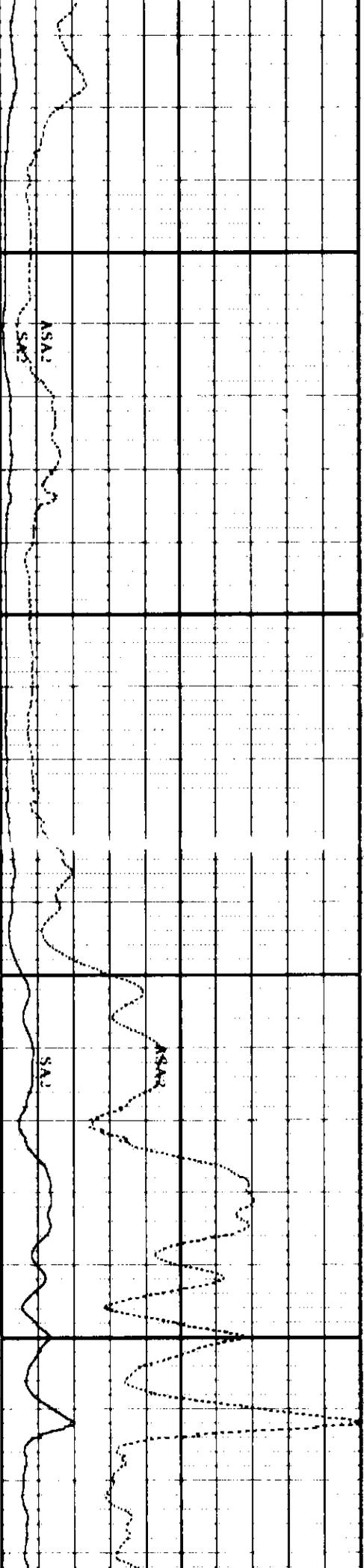




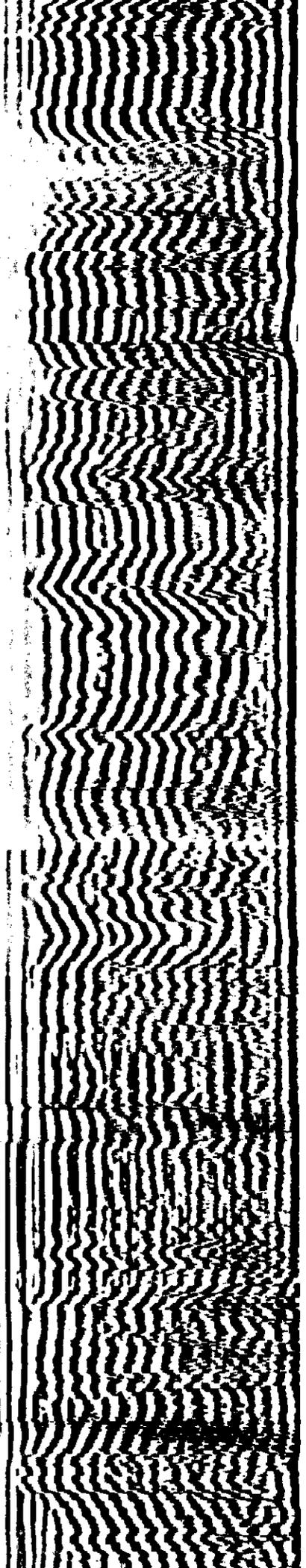
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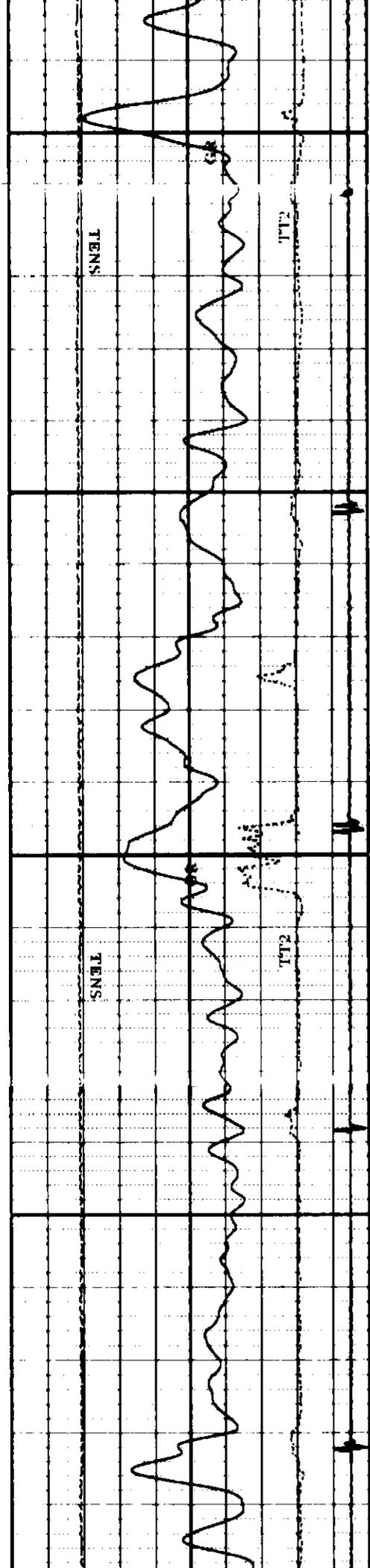
TGS

4700



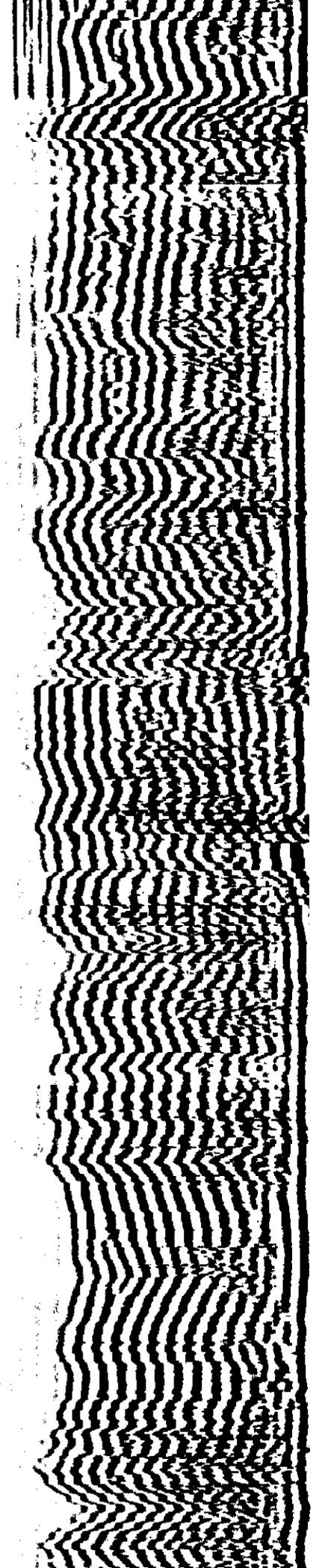
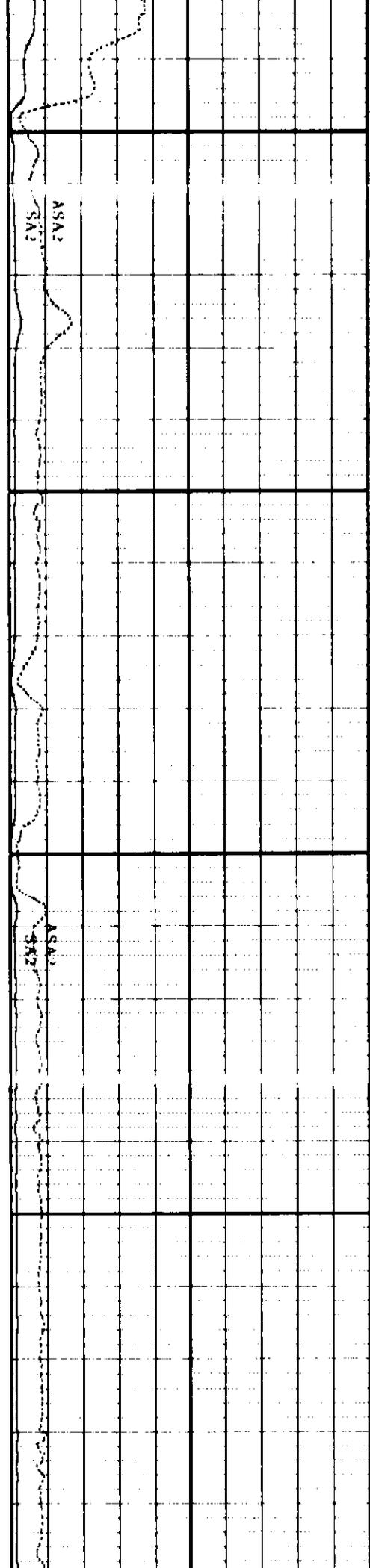
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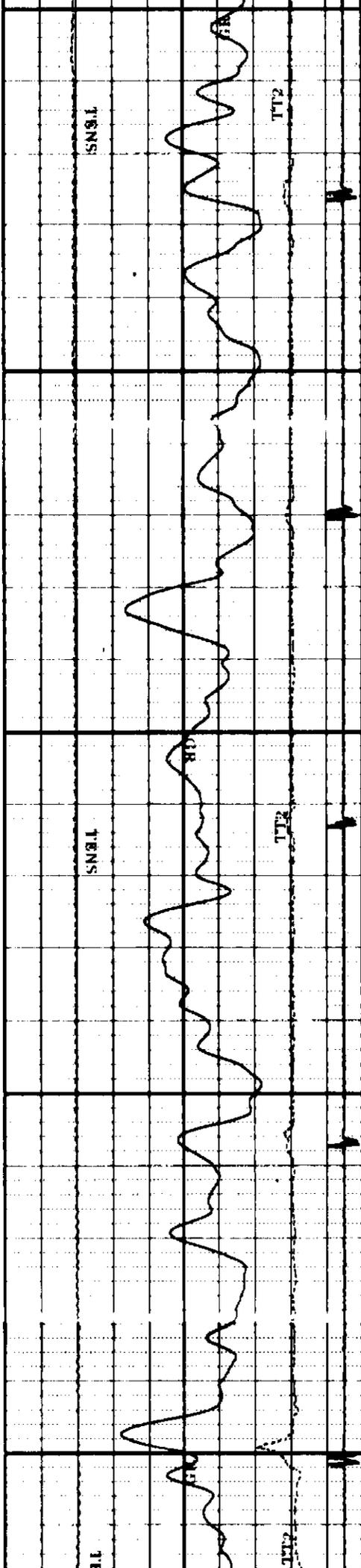




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4900

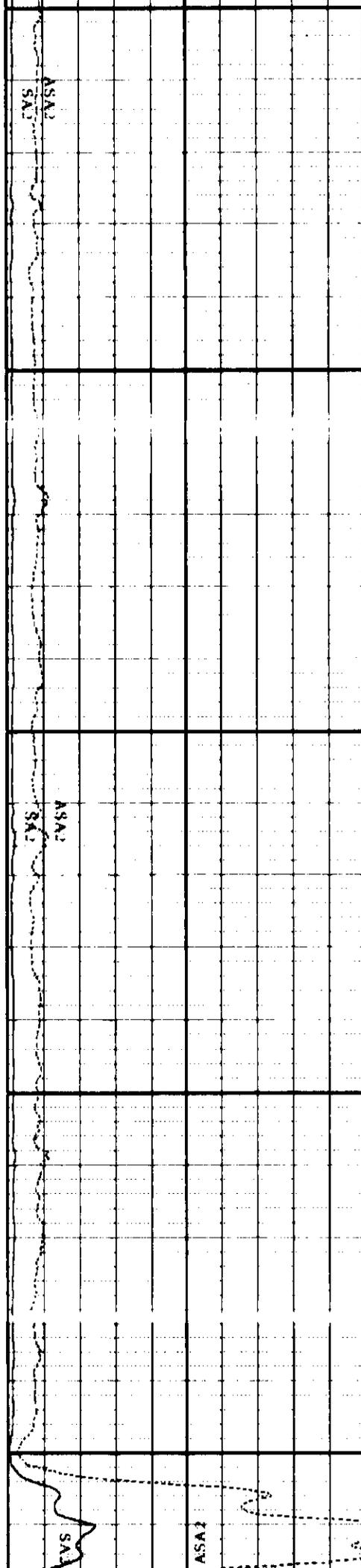




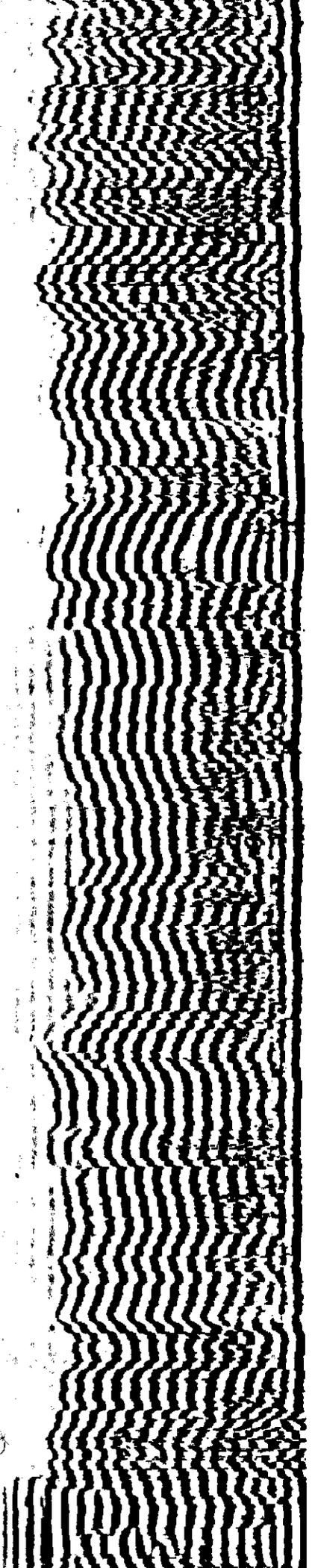
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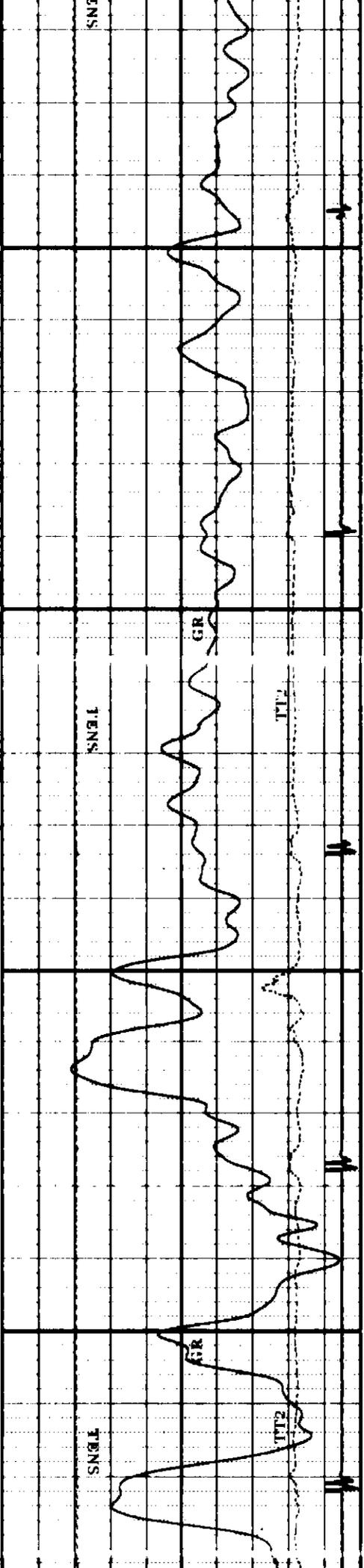
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TGS



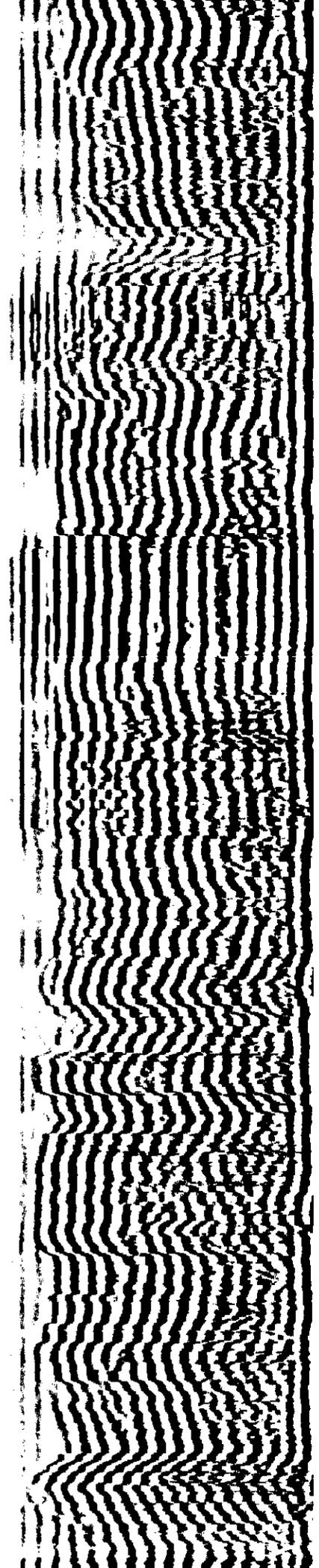
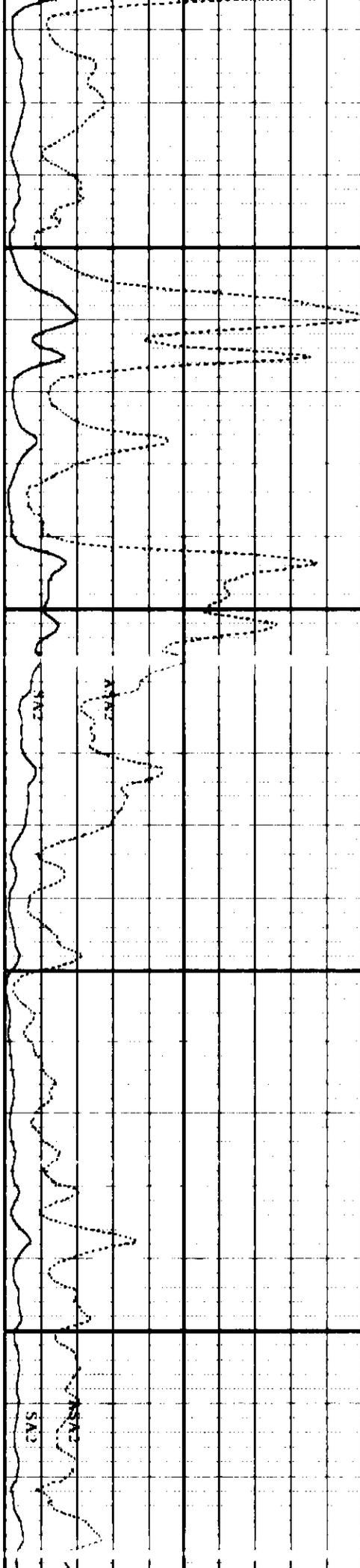
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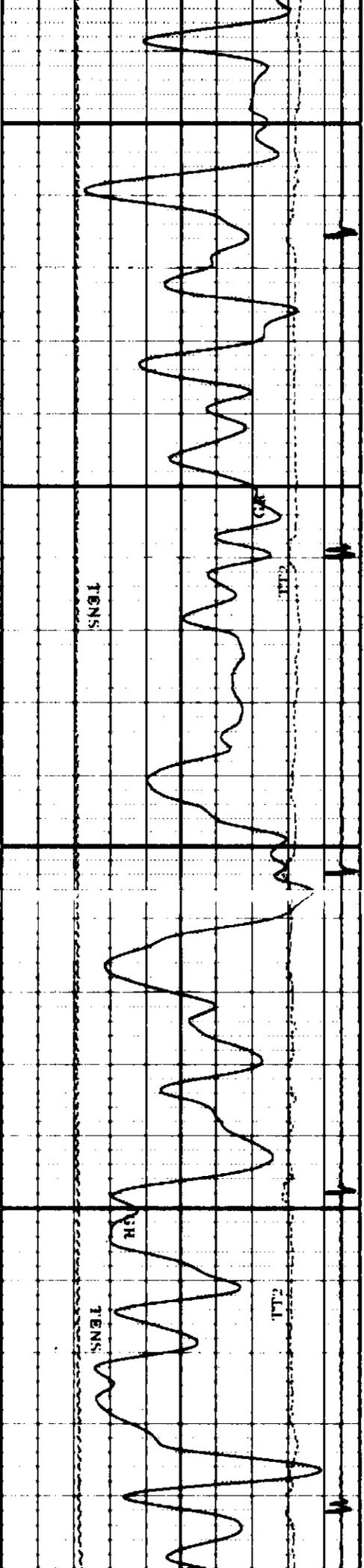




5200

5300

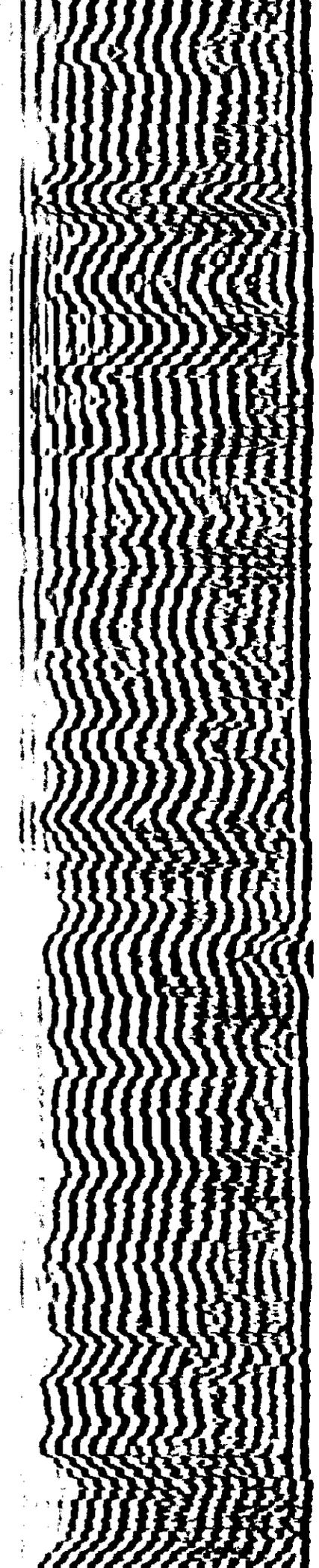
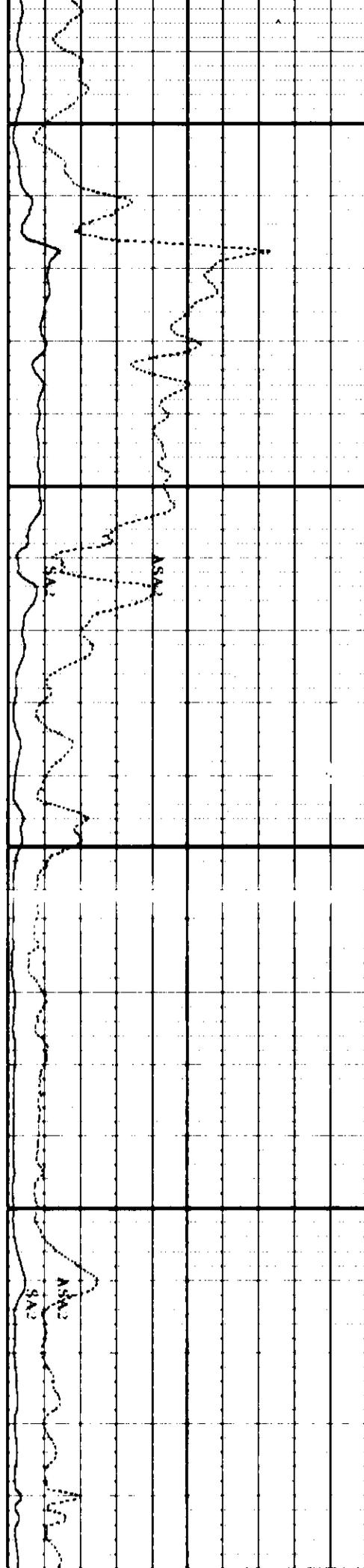


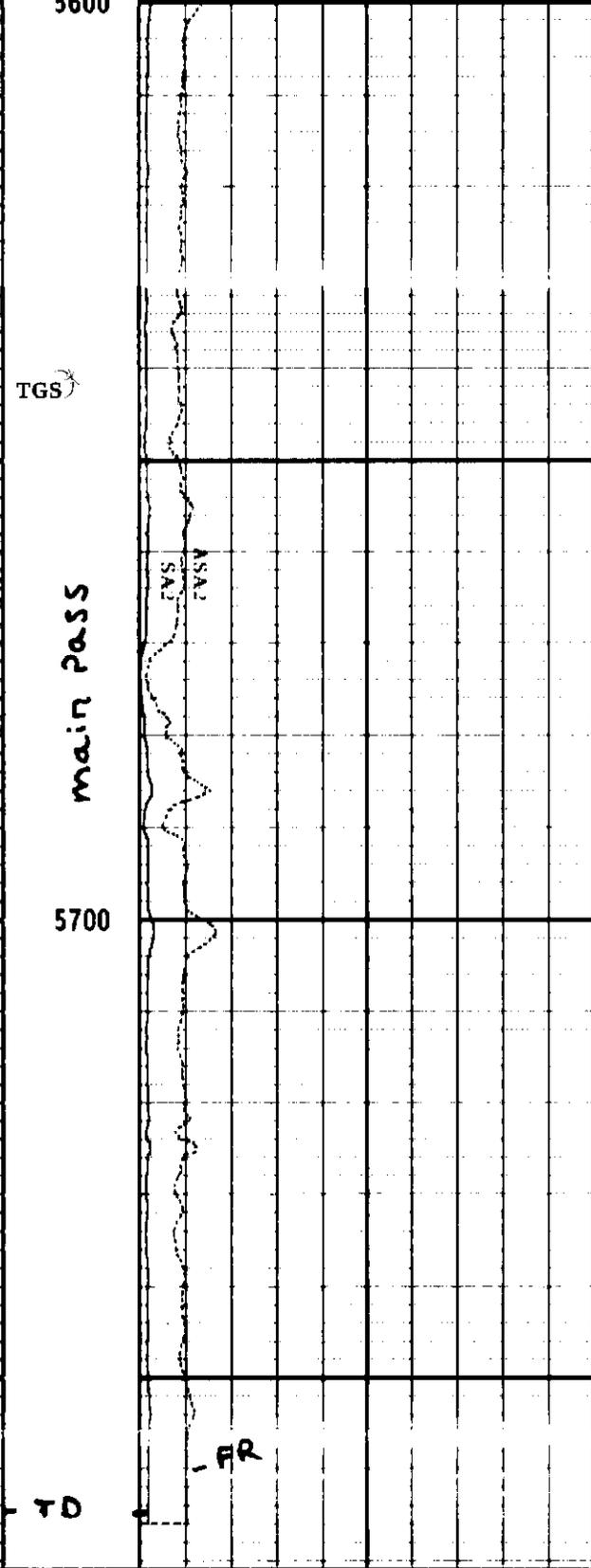
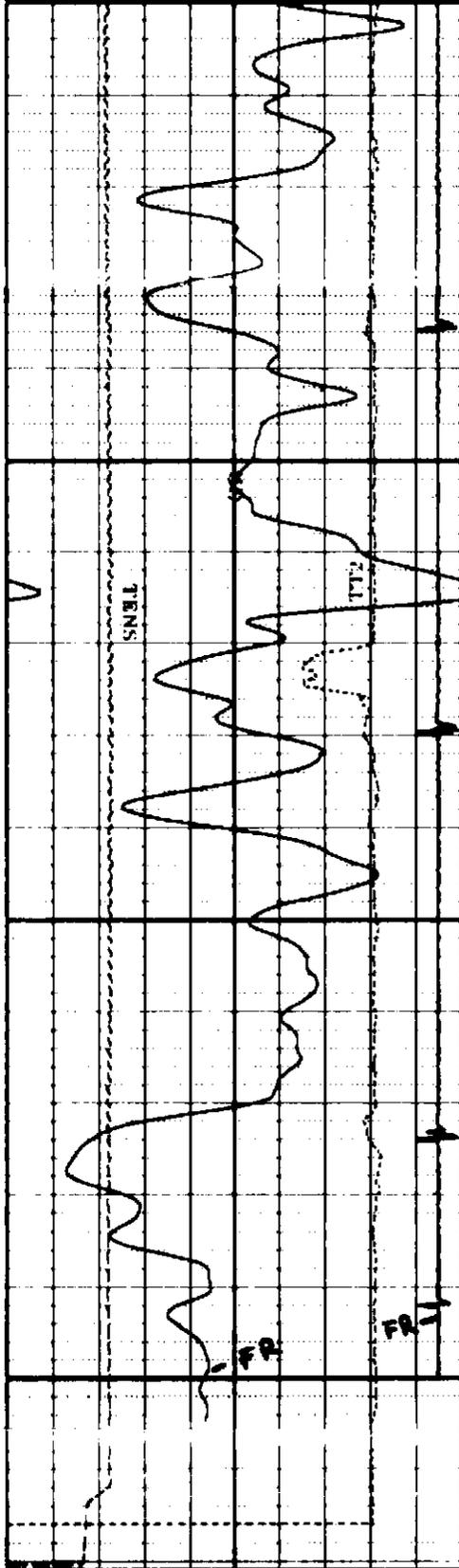


5400

5500

5600





.250	CCI	250
0	GR	150
420	IT2	220
0	TENS	4000

main PASS		
0	ASA2	20
0	SA2	100

200	VDI	1200
-----	-----	------

Sensor Measure Point to Tool Zero

SLTJ FREC 3.5 ft
 SLTJ NREC 4.5 ft.
 SGTG GR 15.5 ft.
 CCL-AJ 20.2 ft
 TENS 0.0 ft.
 SPEED 0.0 ft

Software Version UX124

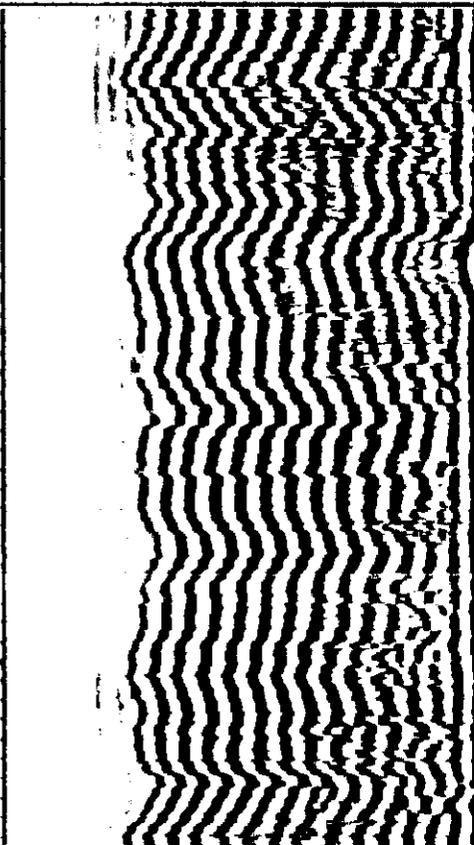
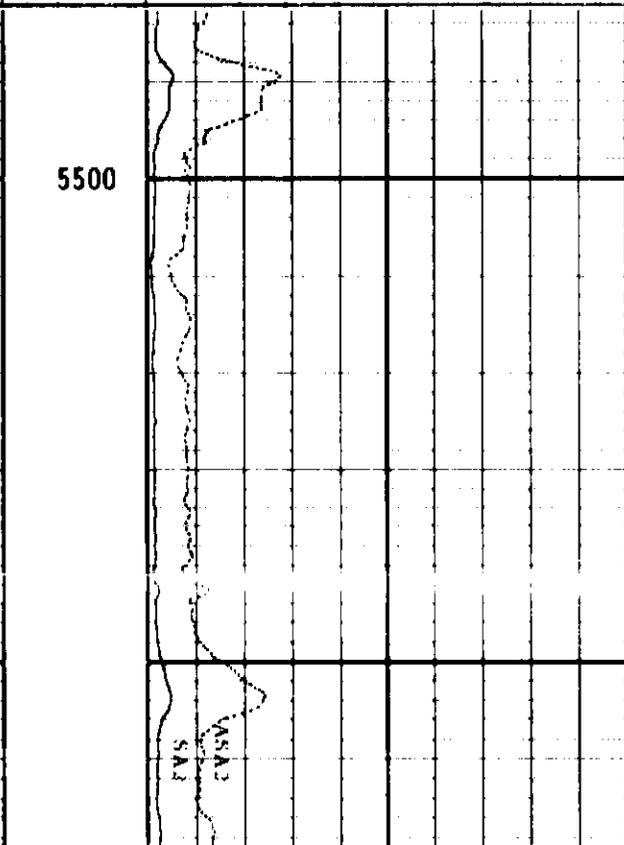
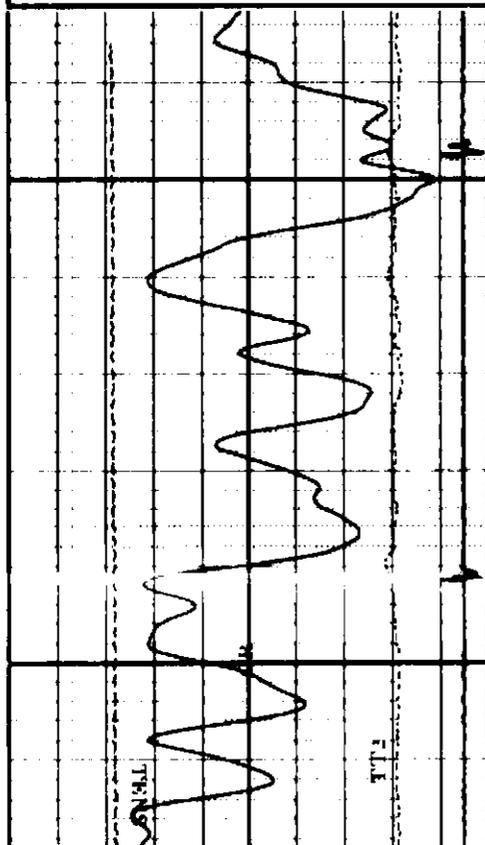
Logging Pass Start Depth 5767.5 ft
 Logging Pass Stop Depth 5486.2 ft

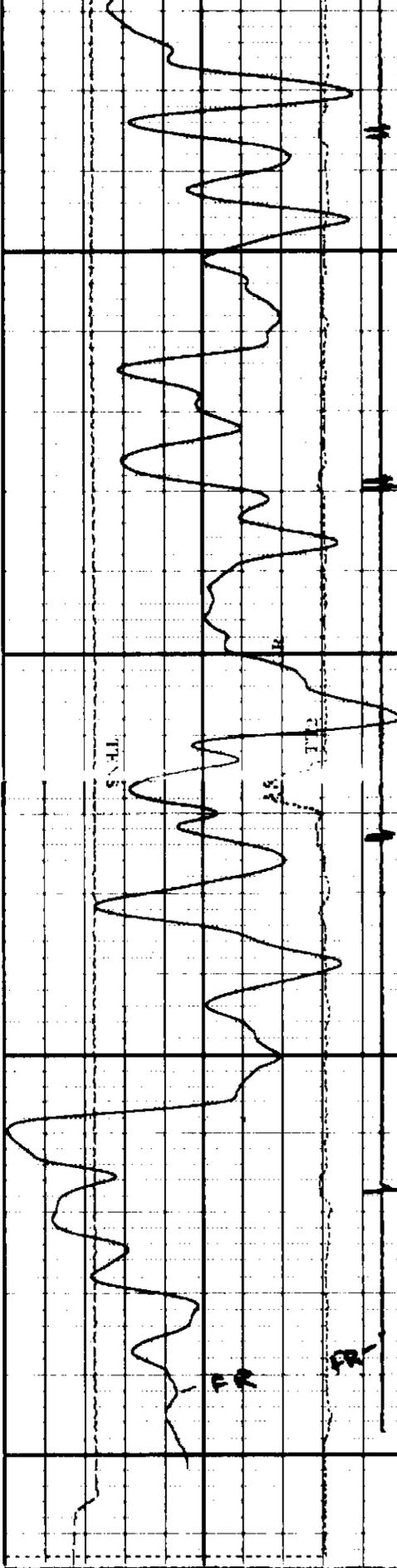
Pass No 1

JOB NAME

SCALE CHANGE REPORT
 NO SCALE CHANGES THIS FILE

-250	CCL	250			
0	GR	150	0	ASA2	20
420	TT2	220	0	SA2	100
0	TENS	4000	REPEAT SECTION		
			200	VDI	1200



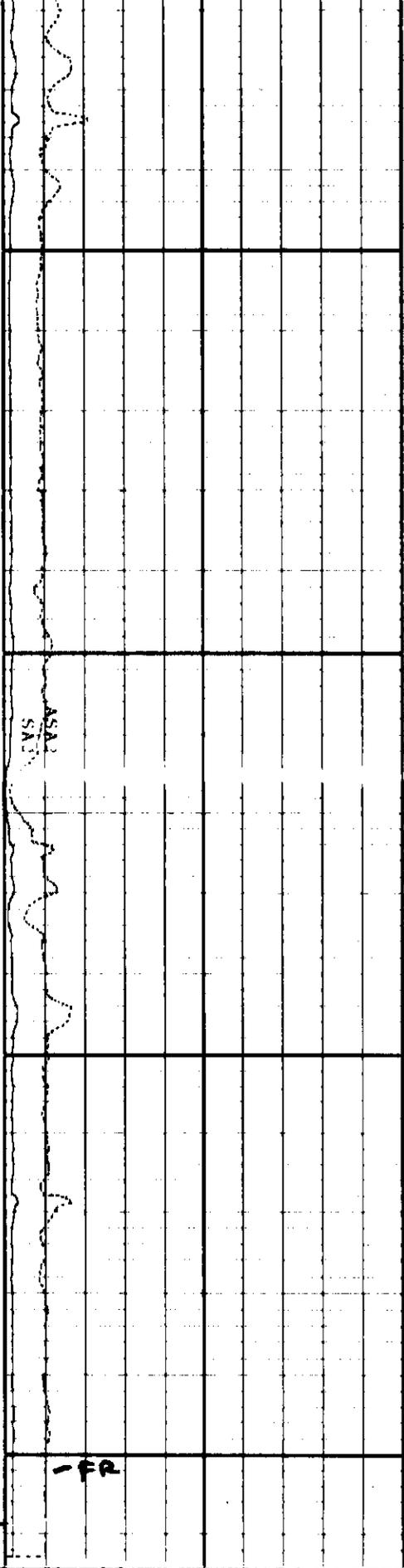


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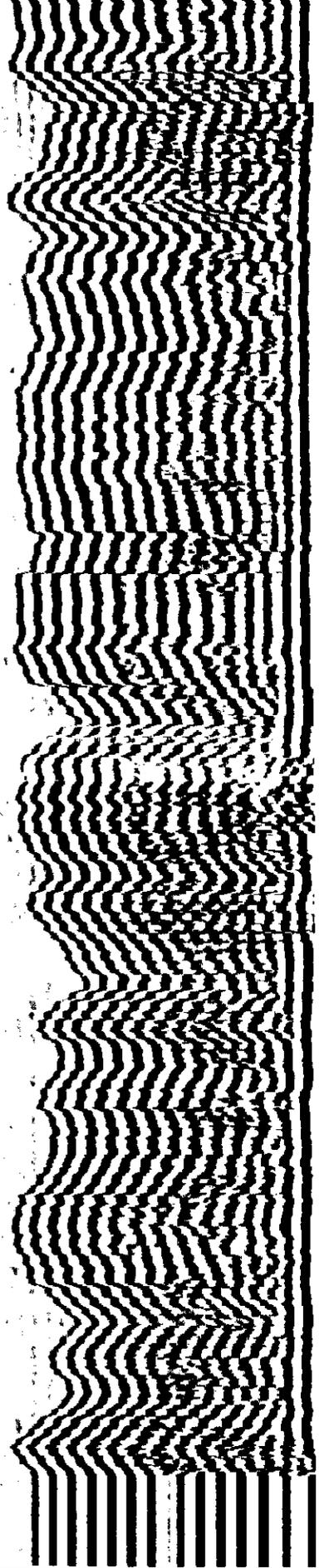
REPEAT SECTION

5700

TO



TGS



-250 CCI 250

0 GR 150

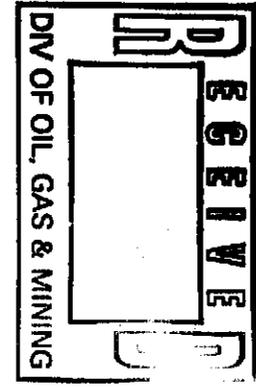
0 ASA2 20

420	TT2	220	0	SA2	100
0	TENS	4000	200	VDI	1200

Film Scale 5 in = 100 feet (5 inch)

Sensor Measure Point to Tool Zero

SLTJ FREC	3.5	ft
SLTJ NREC	4.5	ft
SGTG GR	15.5	ft
CCL-AJ	20.2	ft
TENS	0.0	ft
SPEED	0.0	ft



ATTACHMENT NO. 8

OPEN HOLE LOG FOR THE UIC WELL

Schlumberger

**SIMULTANEOUS
COMPENSATED NEUTRON-
LITHO-DENSITY**

COUNTY DUCHE SNE
FIELD ANTELOPE CREEK
LOCATION 697 E NL & 636 E WL
WELL UTE TRIBAL #4-17
COMPANY PETROGLYPH OPERATING CO

COMPANY PETROGLYPH OPERATING CO. **SEE I W E**
WELL UTE TRIBAL #4-17
FIELD ANTELOPE CREEK
COUNTY DUCHE SNE **STATE** UTAH
14 1994
OF OIL, GAS & MINING

LOCATION 697 E NL & 636 E WL
NW/NE
API SERIAL NO. 43-013-31464
SECT. 17 TWP. 5 S RANGE 3 W
Other Services: DIL, LDT, CNL, PCD
Elev.: K.B. 5920.0 F
D.F. 5919.0 F
G.L. 5910.0 F

Permanent Datum GROUND LEVEL Elev. 5910.0 F
Log Measured From KELLY BUSHING 10.0 F above Perm. Datum
Drilling Measured From KELLY BUSHING

Date	22-OCT-1994
Run No.	ONE
Depth Driller	5832.0 F
Depth Logger (Schl.)	5825.0 F
Blm. Log Interval	5791.0 F
Top Log Interval	426.0 F
Casing-Driller	8 5/8" (??) 427.0 F
Casing-Logger	426.0 F (??)
Bit Size	7 7/8" (??) 5825.0 F (??)
Type Fluid in Hole	KCL/water
Dens.	8.30 LB/G 27.0 S
PH	11.5
Source of Sample	FLOWLINE
Rm @ Meas. Temp.	1.390 OHMM (??) 68.0 DEGF
Rmf @ Meas. Temp.	1.390 OHMM (??) 68.0 DEGF
Rmc @ Meas. Temp.	(??)
Source: Rmf Rmc	MEASURED N/A
Rm @ BHT	648 OHMM (??) 154 DEGF
Circulation Ended	0300 22-OCT-1994
Logger on Bottom	1012 22-OCT-1994
Max. Rec. Temp.	154 DEGF
Equip. Location	8264 VERNAL
Recorded By	G TRACY
Witnessed By	DAN LINDSFY

The well name, location and borehole reference data were furnished by the customer.

All interpretations are subject to well log interferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretations and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations made by any of our officers, agents or employees. These interpretations are also subject to Clause 4 of our General Terms and Conditions as set out in our current Price Schedule.

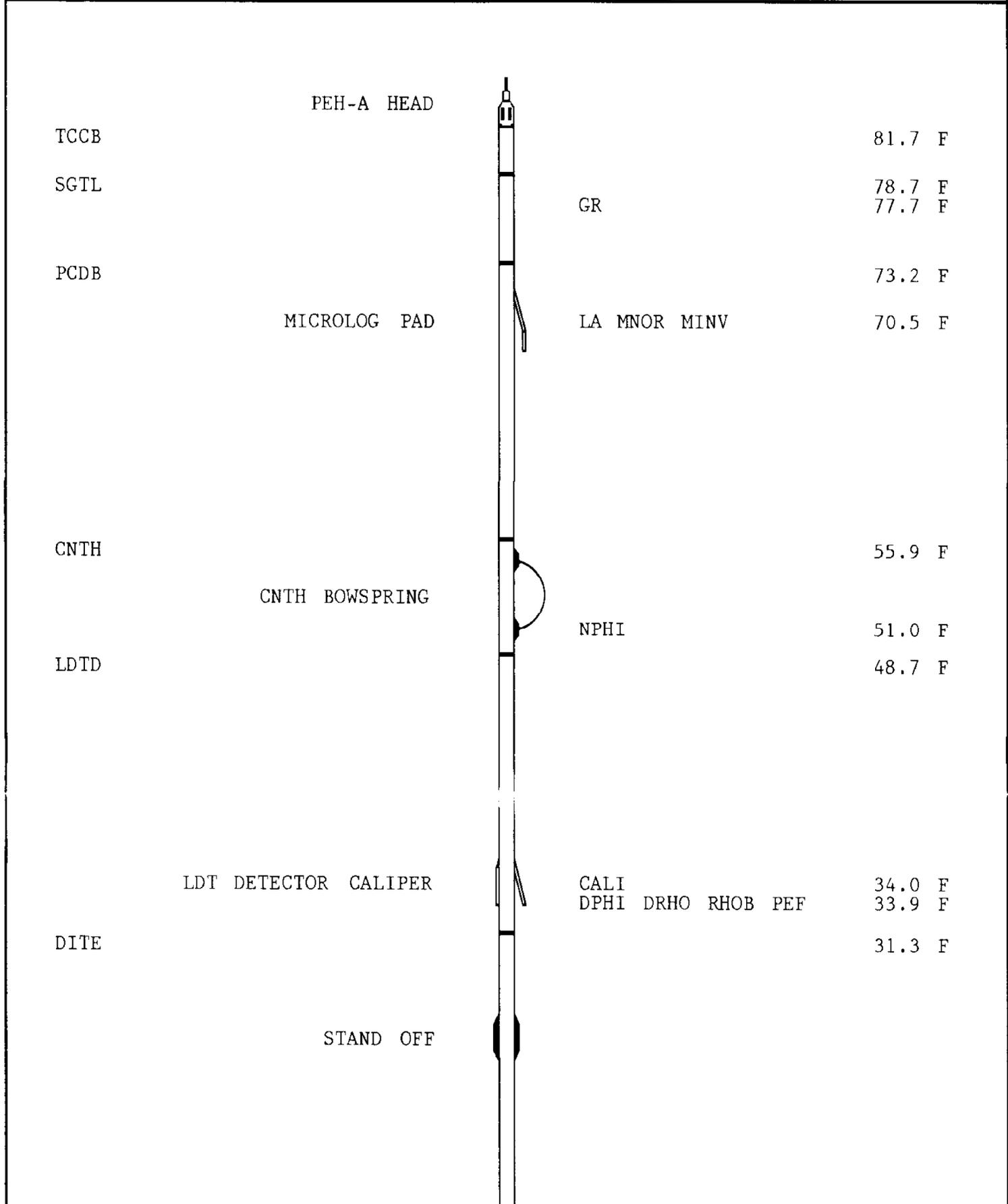
Run No.	ONE
Service Order No.	638508
Drilling Fluid Level	0.0 F
Salinity	1500.0 PPM
Rmf @ BHT	648 OHMM @ 154 DEGF @
Rmc @ BHT	@ 154 DEGF @
Logging Speed	1800.0 F/HR
EQUIPMENT DATA	
Tool Number 1	TCM AB 1147
Tool Number 2	SGC SA 8264
Tool Number 3	PCD B 91
Tool Number 4	DIC EC 465
Tool Number 5	DIS HD 468
Tool Number 6	
Tool Number 7	See calib.
Tool Number 8	tail for
Tool Number 9	nuclear
Tool Number 10	tool
Tool Number 11	numbers.
Tool Number 12	
REMARKS:	

REMARKS:

Bowstring used on neutron tool.
 1.5" standoffs used on induction tool.
 Sp noisy through entire log.
 Log run on sand matrix (2.68 g/cc).

Crew: McCurdy, Sunkees & Thorlaksen

LOGGING TOOL STRING SKETCH



	PEH-A HEAD		
TCCB			81.7 F
SGTL		GR	78.7 F 77.7 F
PCDB			73.2 F
	MICROLOG PAD	LA MNOR MINV	70.5 F
CNTH			55.9 F
	CNTH BOWSPRING	NPHI	51.0 F
LDTD			48.7 F
	LDT DETECTOR CALIPER	CALI DPFI DRHO RHOB PEF	34.0 F 33.9 F
DITE			31.3 F
	STAND OFF		

SP	10.3 F
ILD	9.5 F
SFLU	6.5 F
ILM	6.0 F

STANDOFF BOTTOM NOSE

TOOL ZERO

TOTAL TOOL STRING LENGTH IS 84.7 F.
 TOTAL TOOL STRING WEIGHT IS 1473. LB IN AIR.

FILES SPLICED	SPLICE DEPTH
9 TO 10	3655.0 F

ACCUMULATED INTEGRATION VALUES SUMMARY:

Integrated Hole Volume:	2297.98 F3	FROM 5825.00 F	TO 426.000 F
Integrated Cement Volume:	1407.21 F3	FROM 5825.00 F	TO 426.000 F
(ASSUMING 5.50000 IN O.D. CASING)			

EVENT MARK SUMMARY:

OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
Integrated Hole Volume	10.0000 F3	LEFT EDGE
Integrated Cement Volume	10.0000 F3	RIGHT EDGE

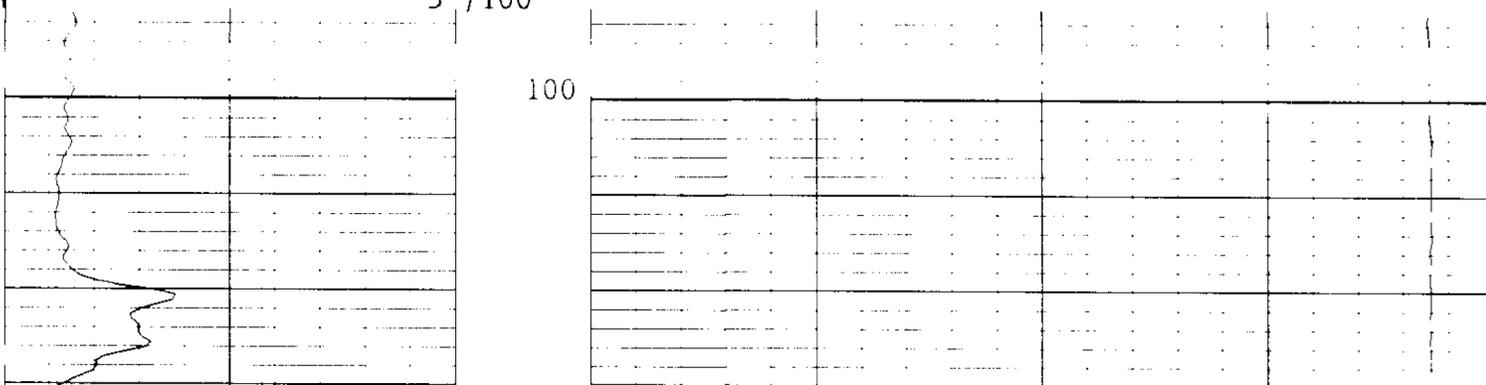
GR(GAP)	TENS(LBF)
0.0 200.00	10000. 0.0

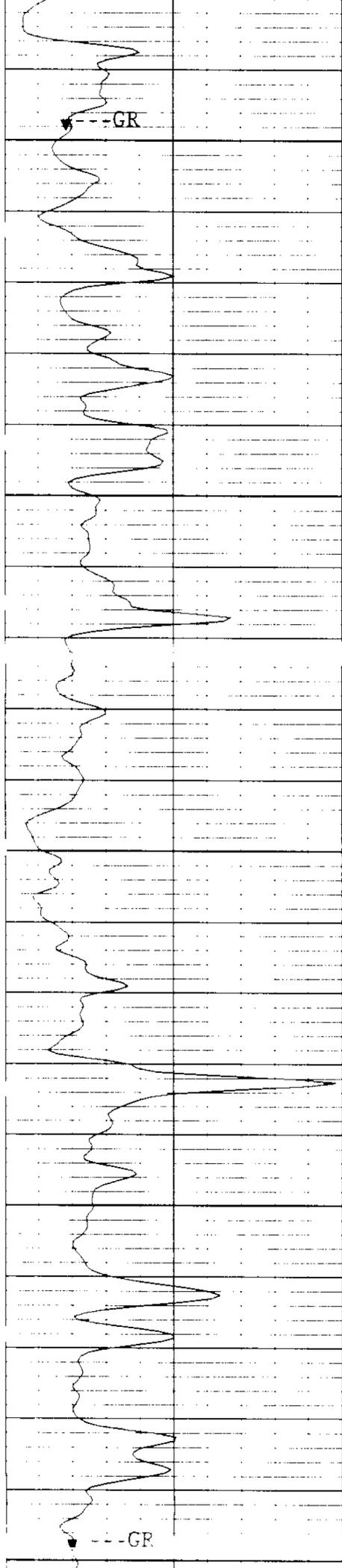
CROSSOVER

CP 40.2 FILE 2 22-OCT-1994 13:30
 INPUT FILE(S) CREATION DATE
 10 22-OCT-1994 13:15

5"/100'

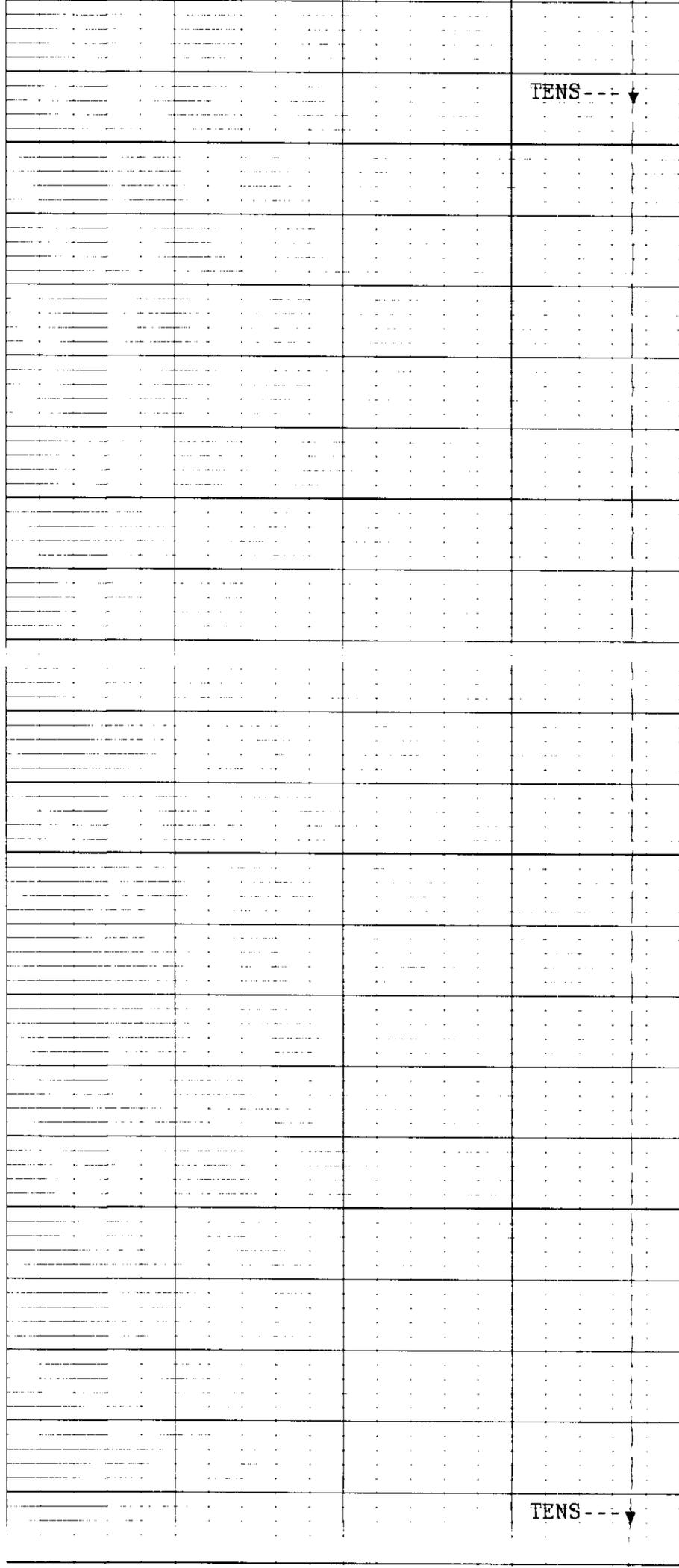
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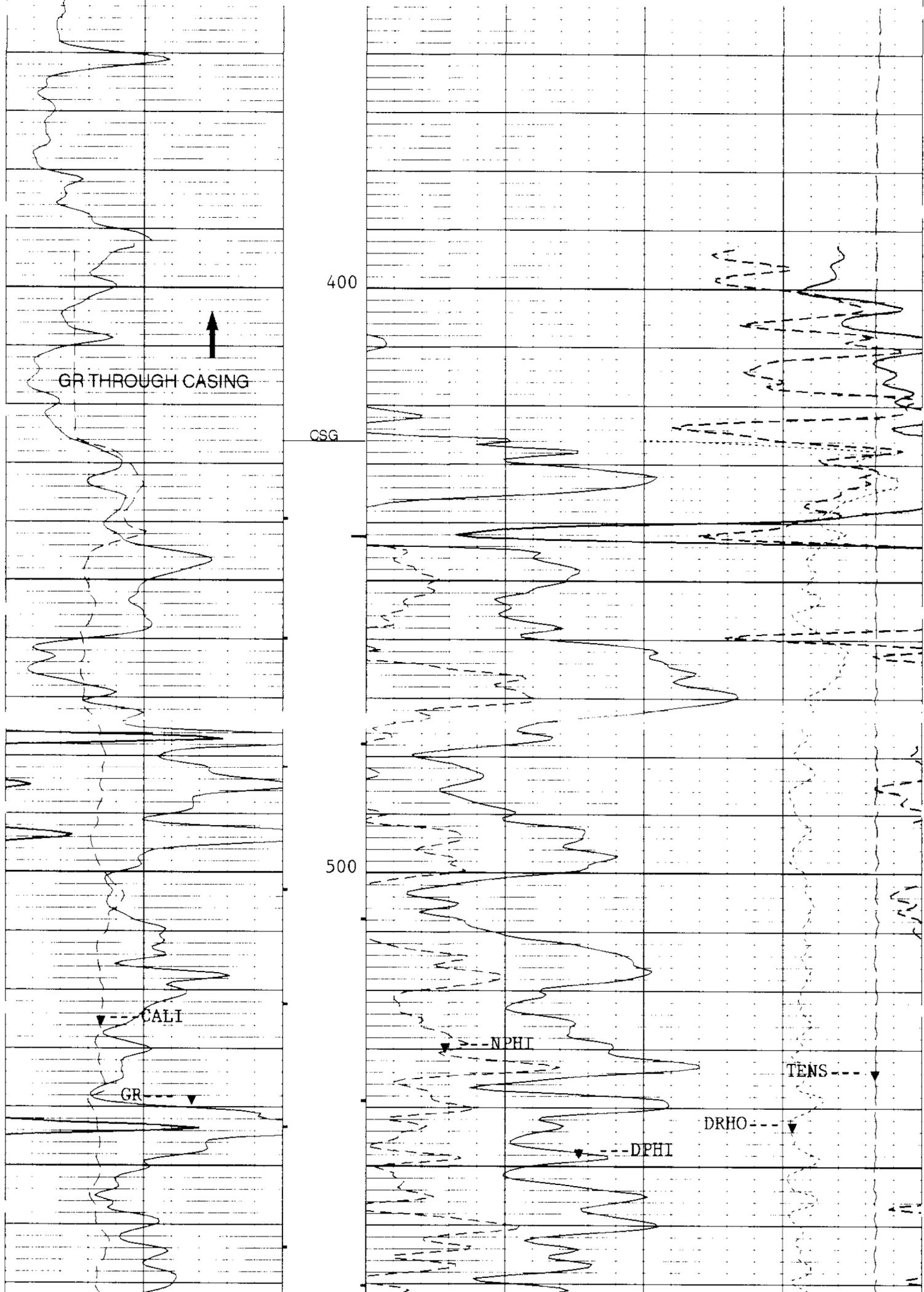


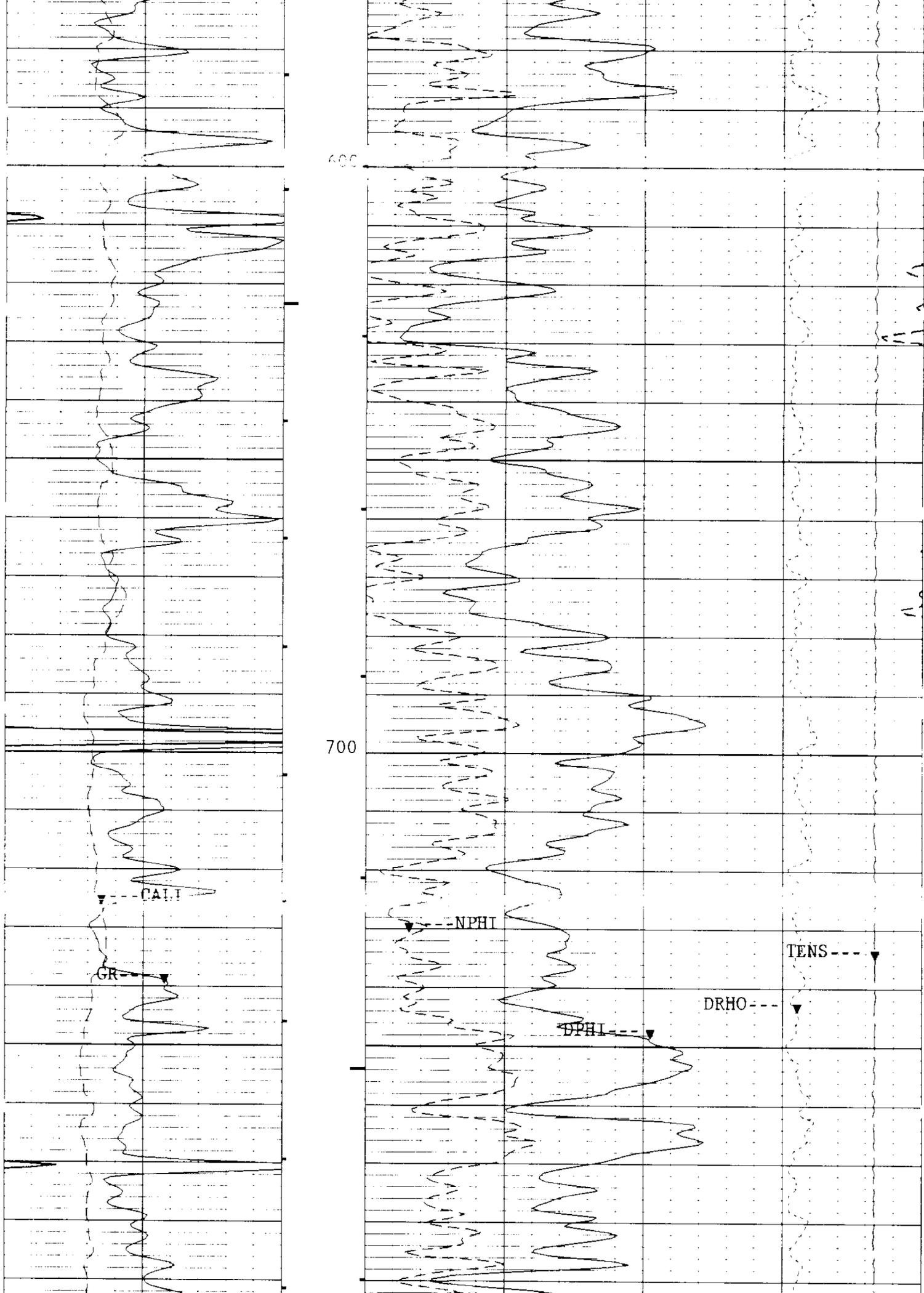


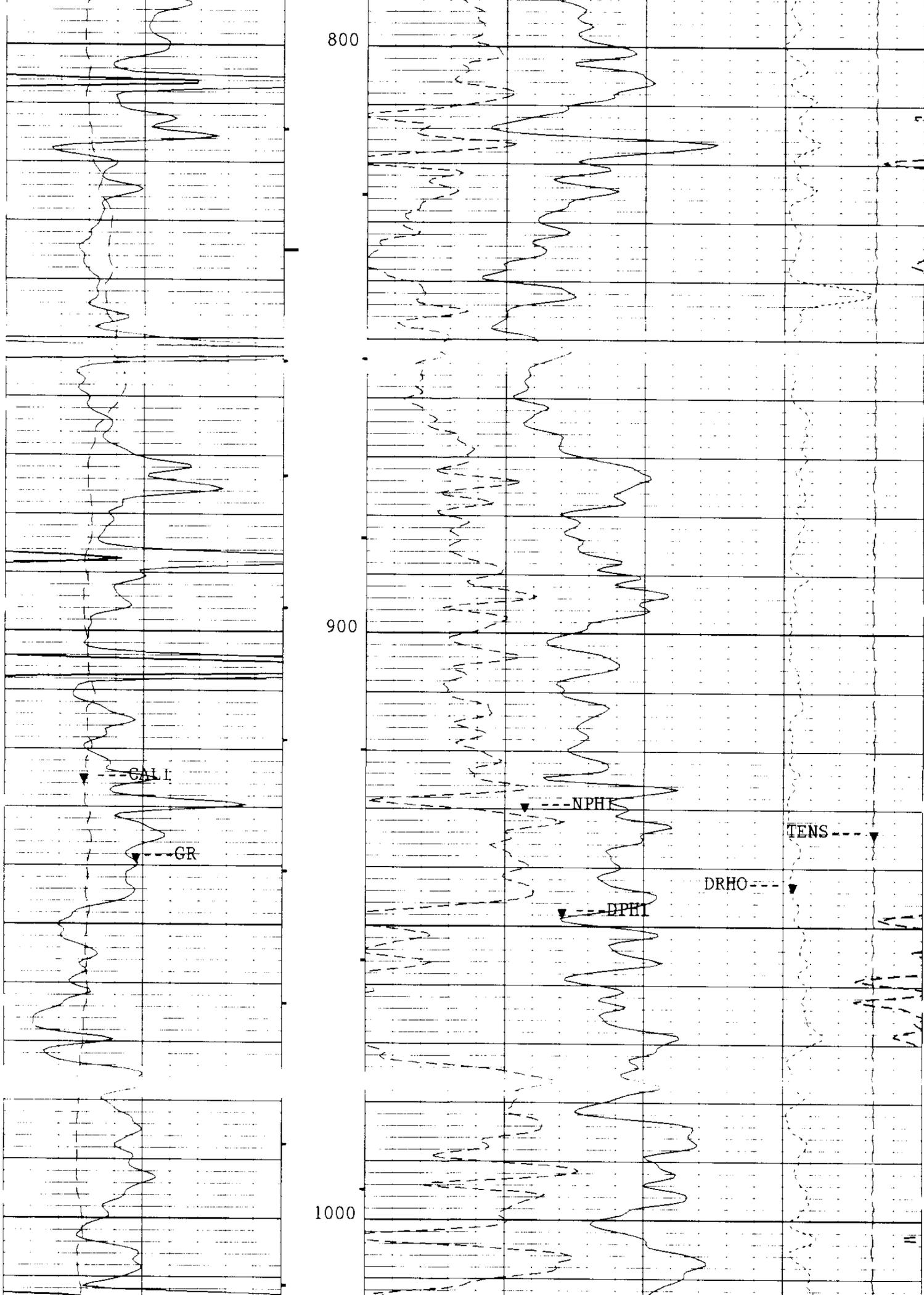
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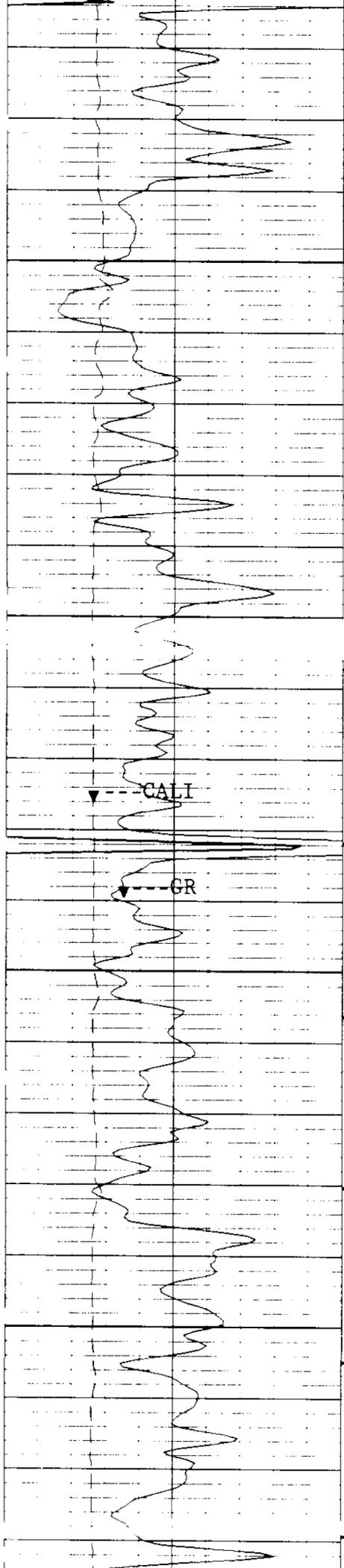
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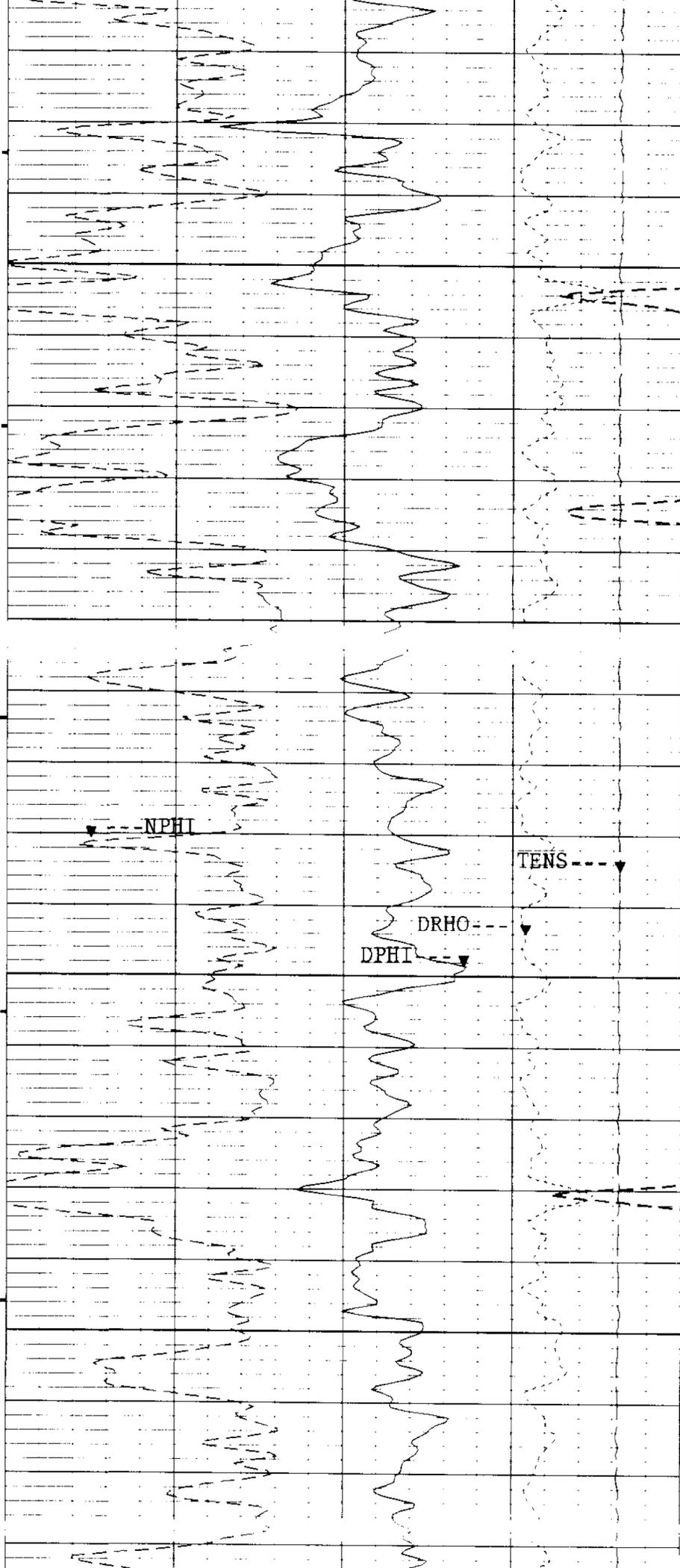


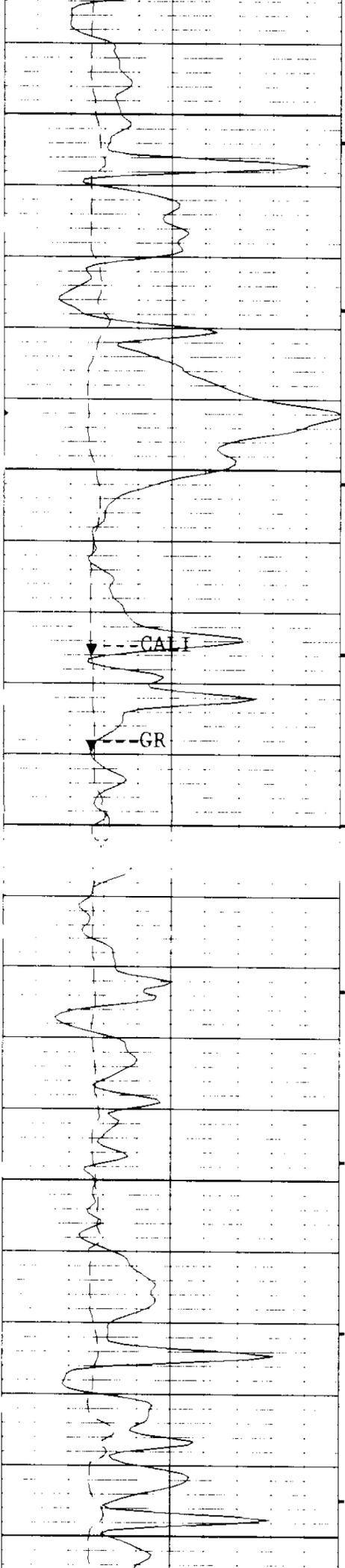




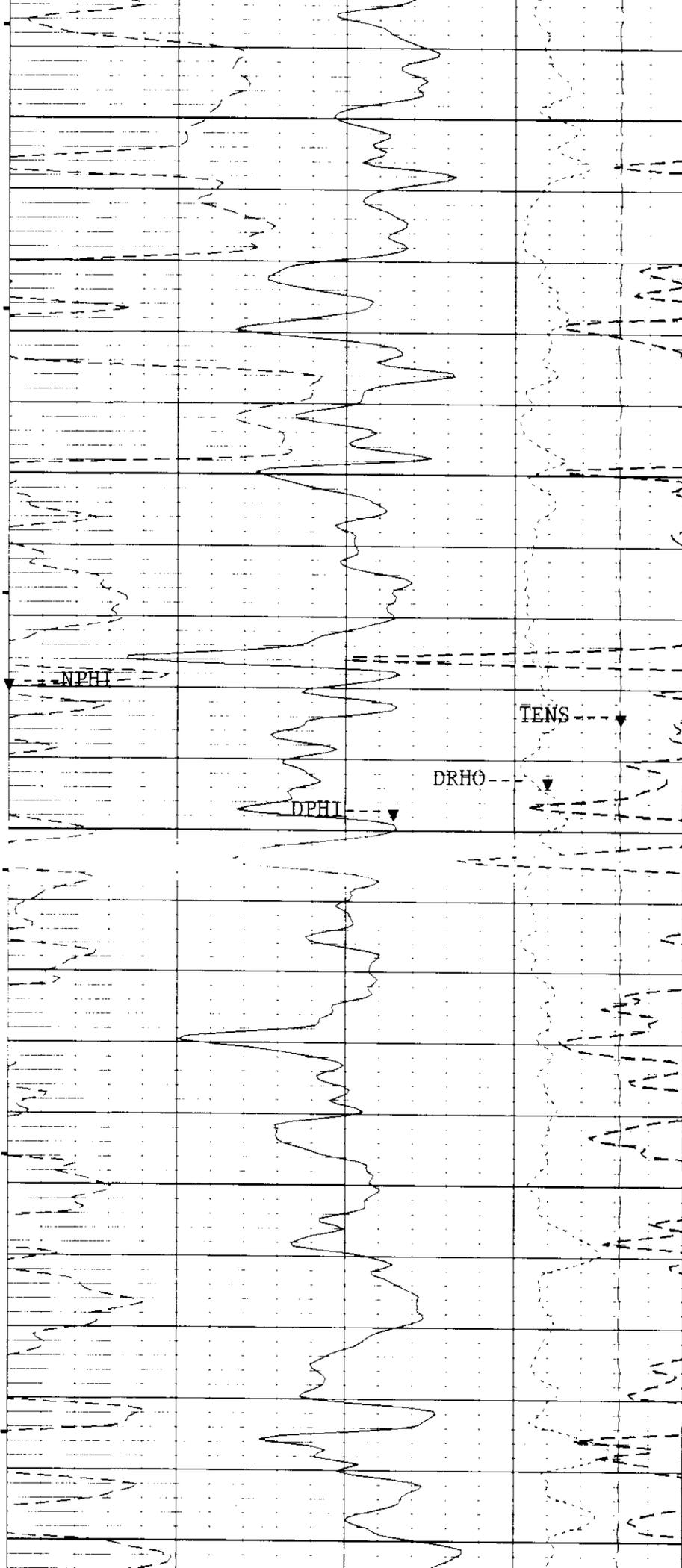
1100

1200

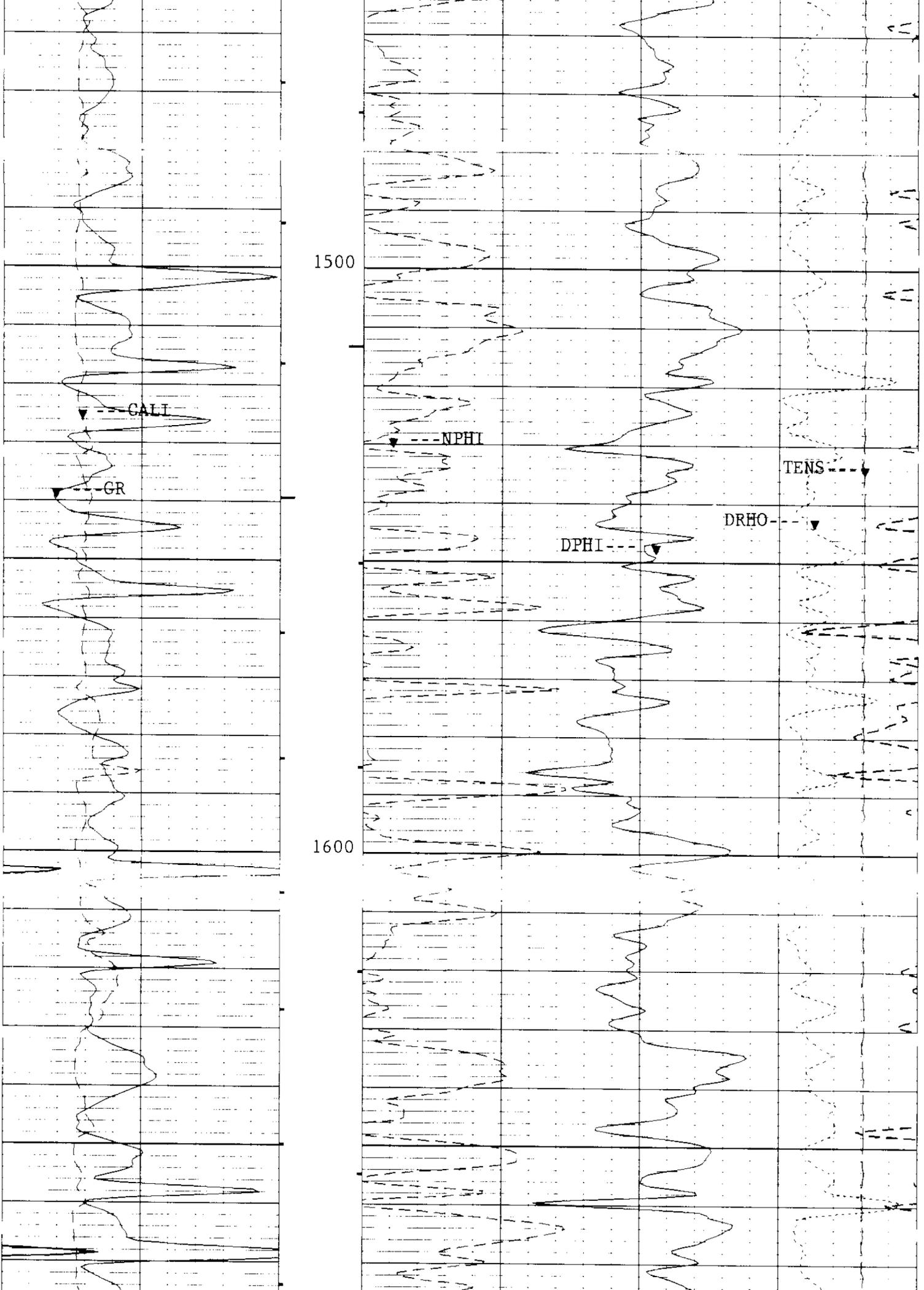


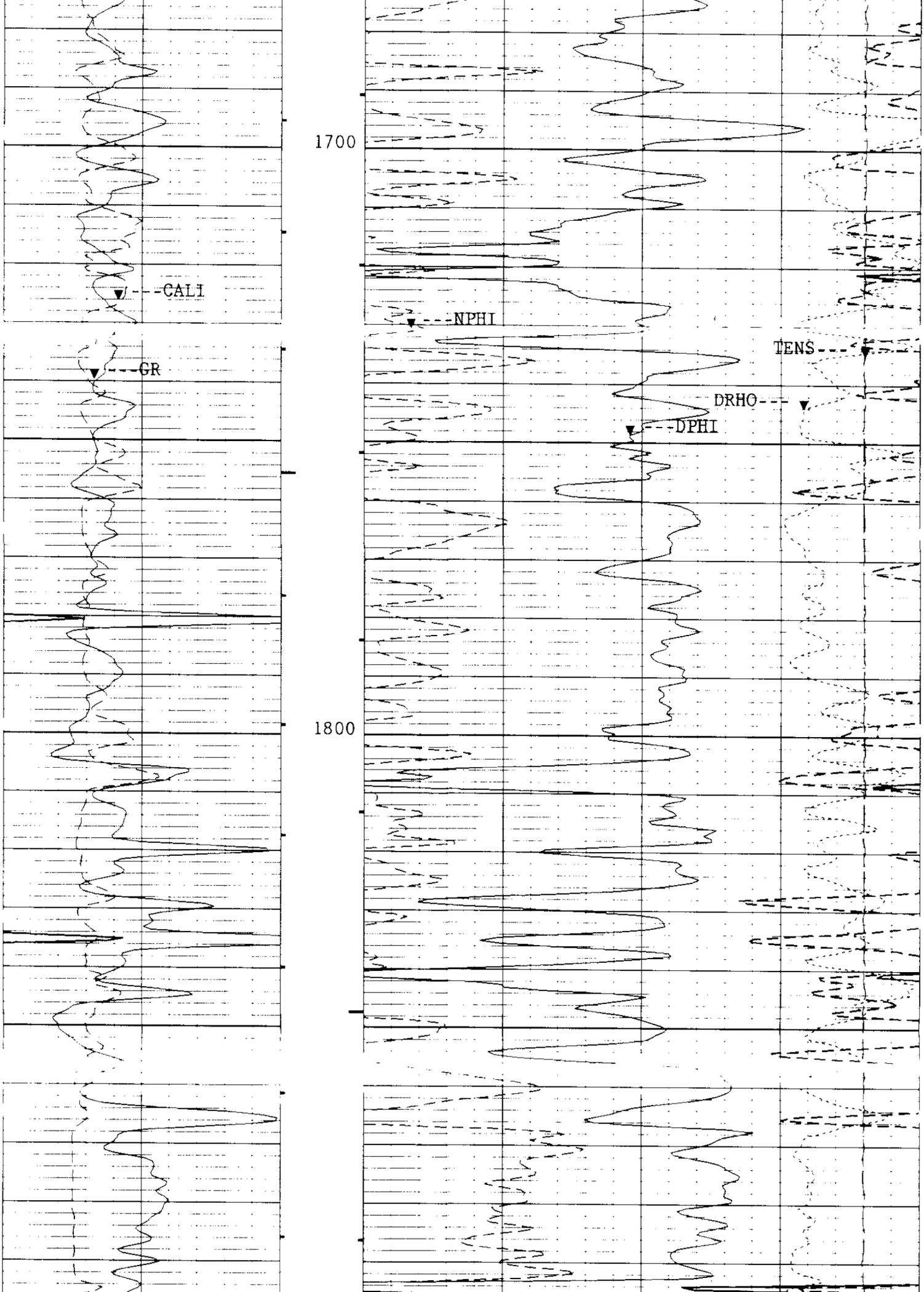


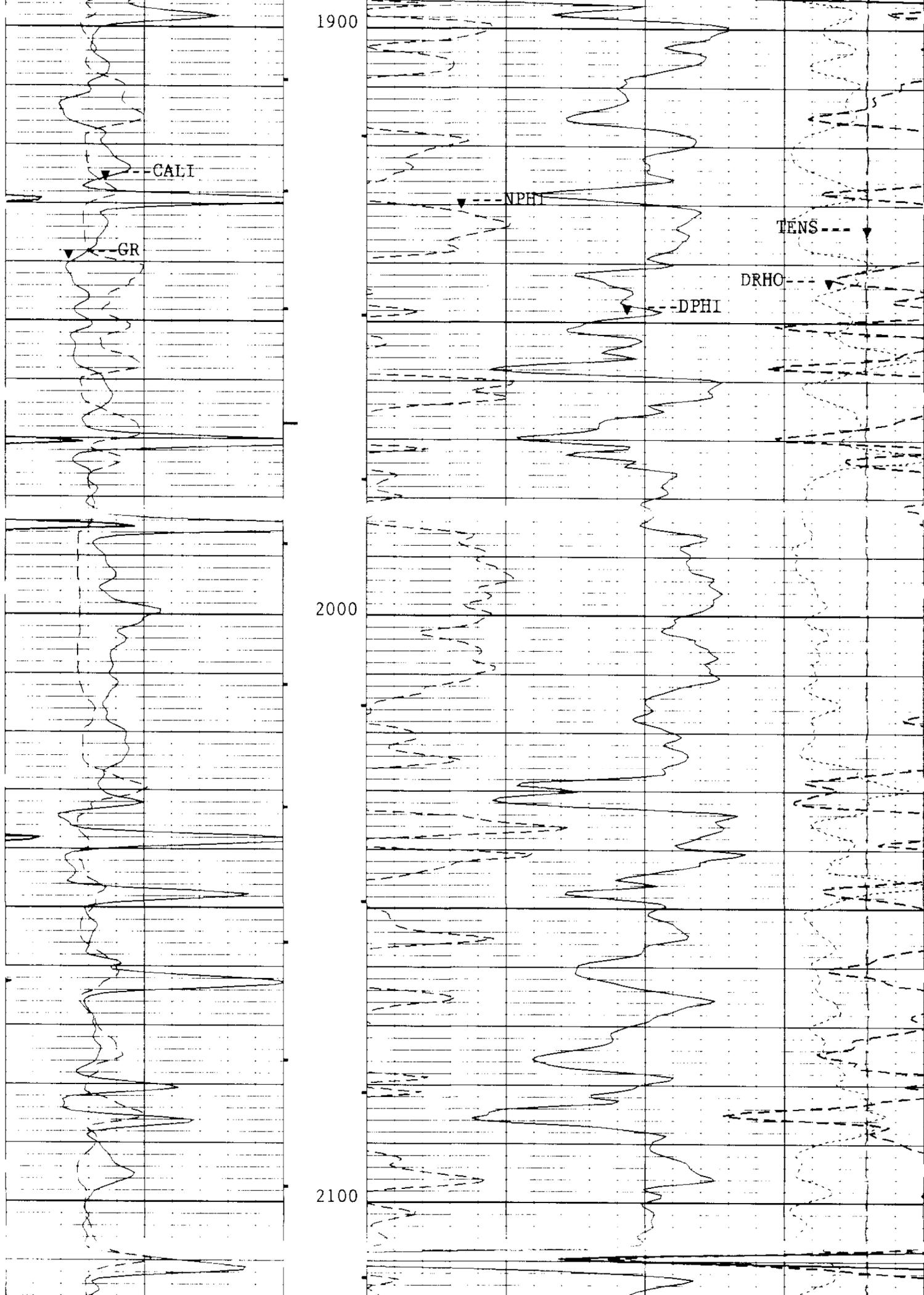
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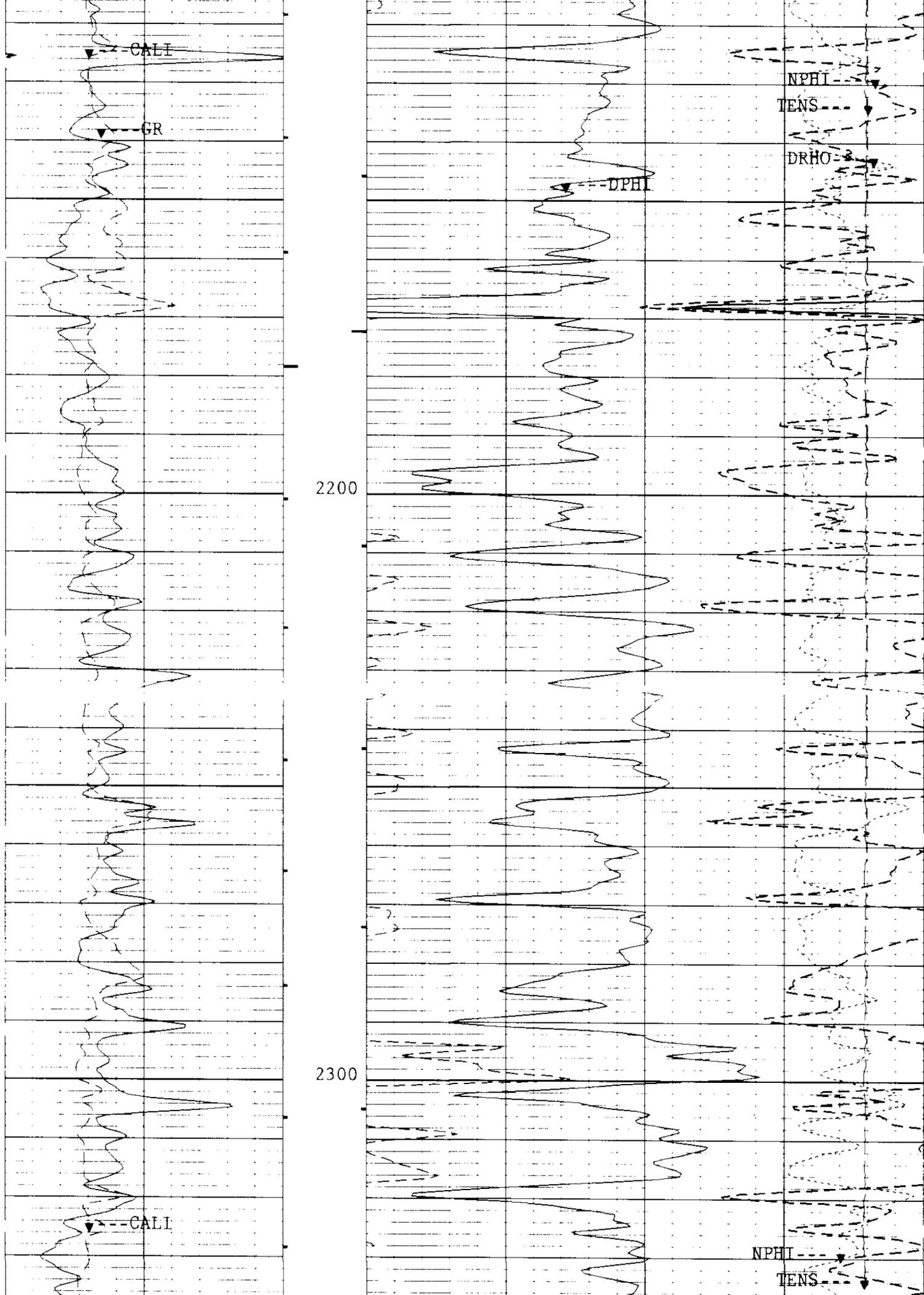


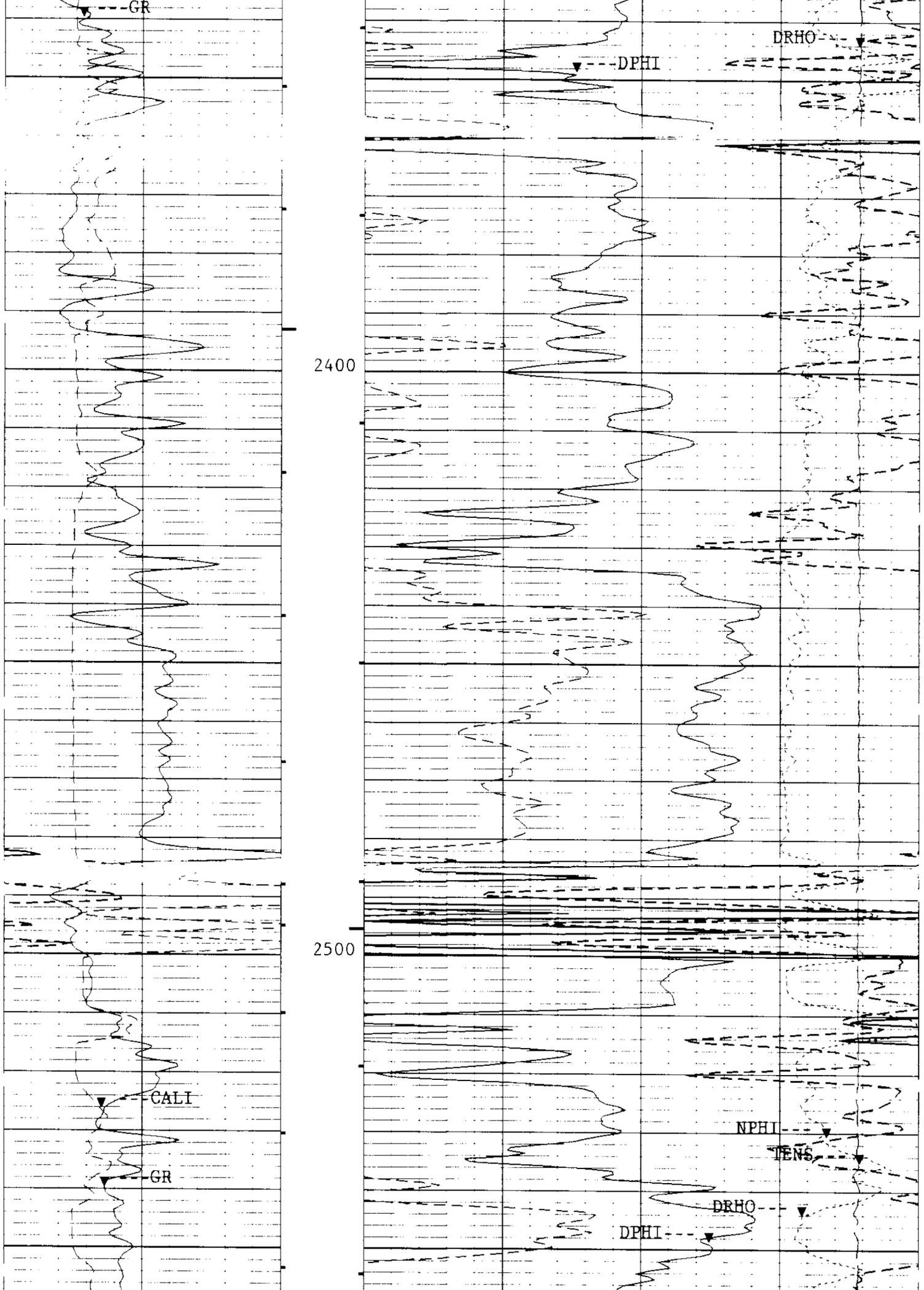
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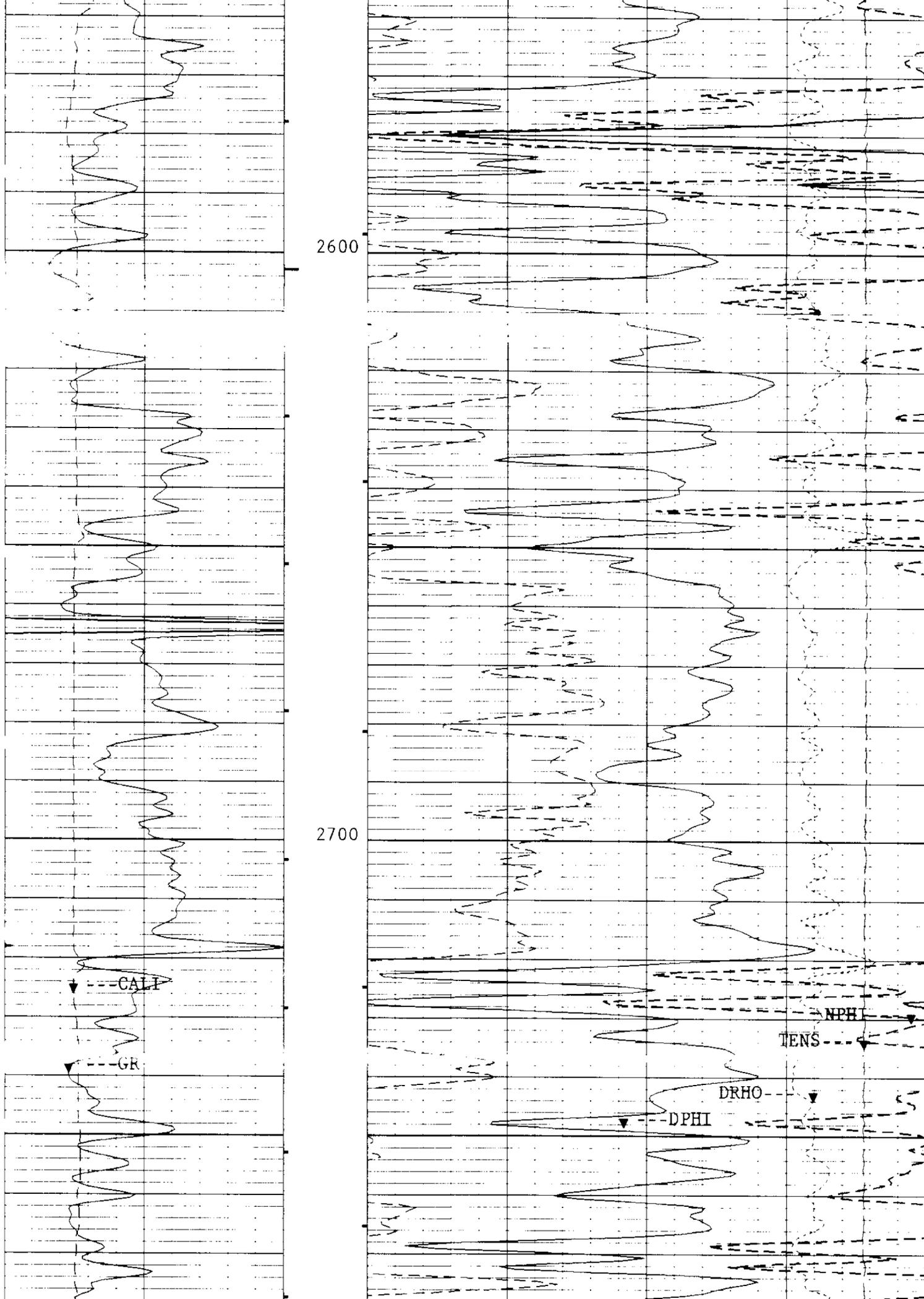












2600

2700

▼ --- CALI

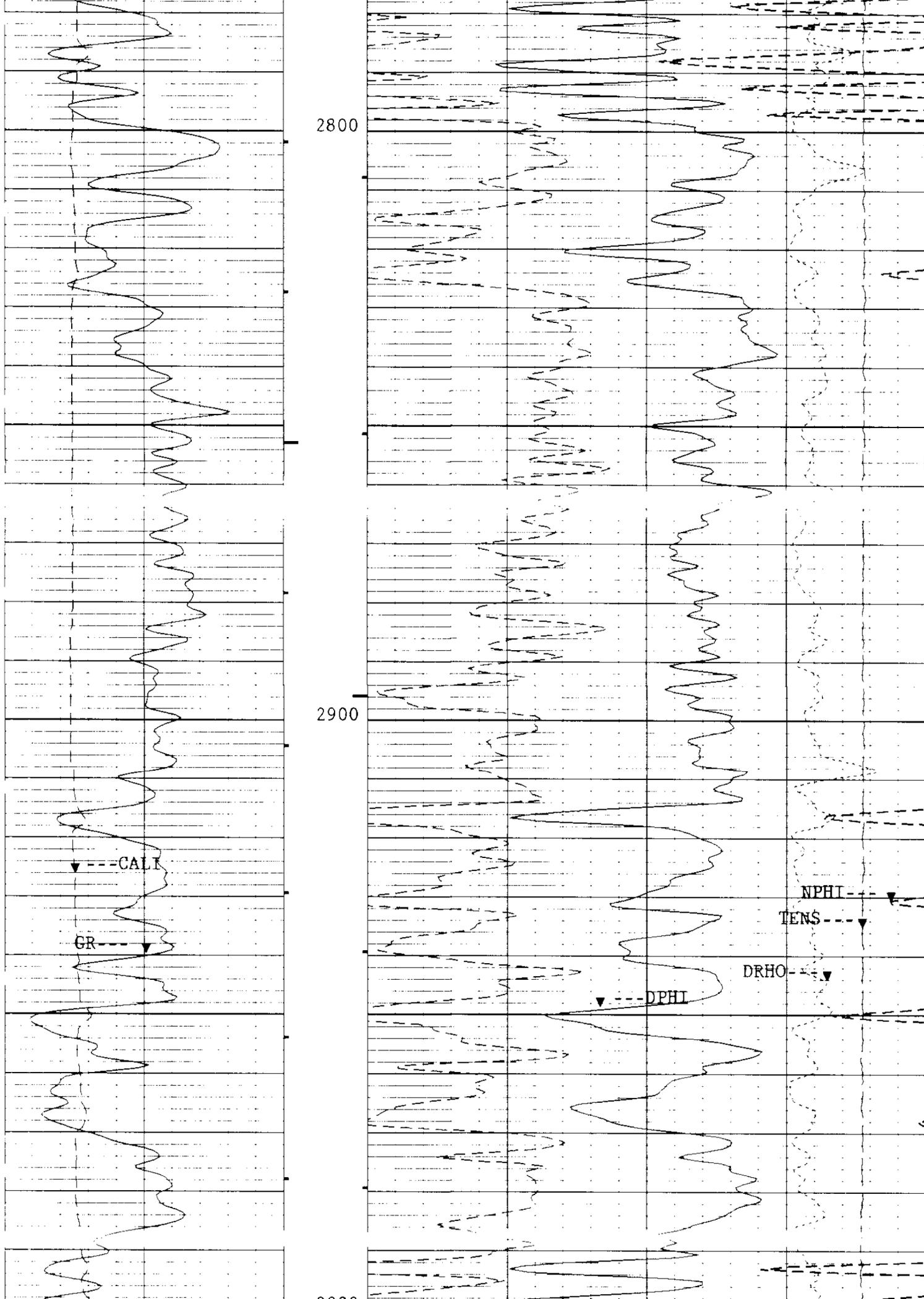
▼ --- GR

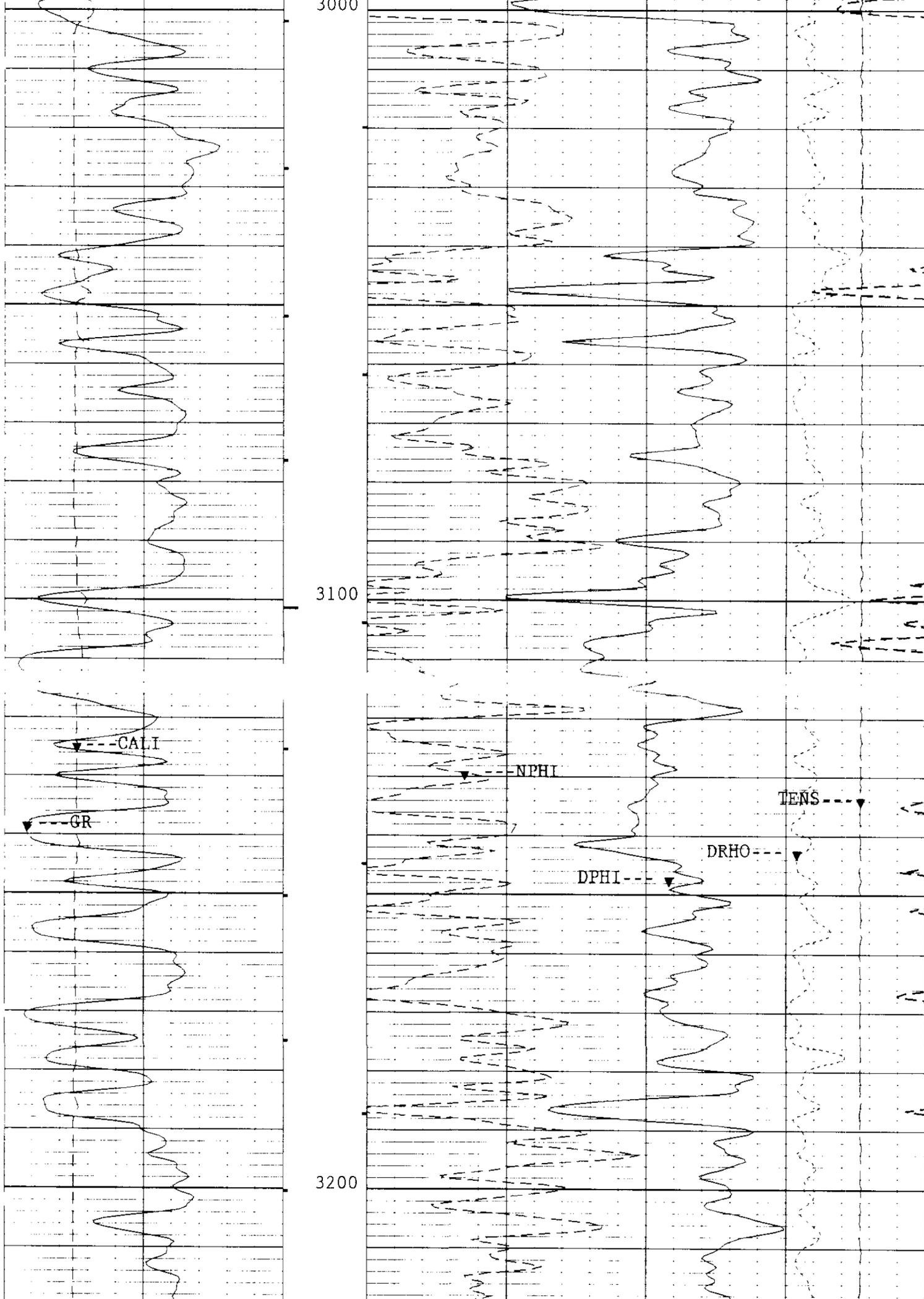
▼ --- DPHI

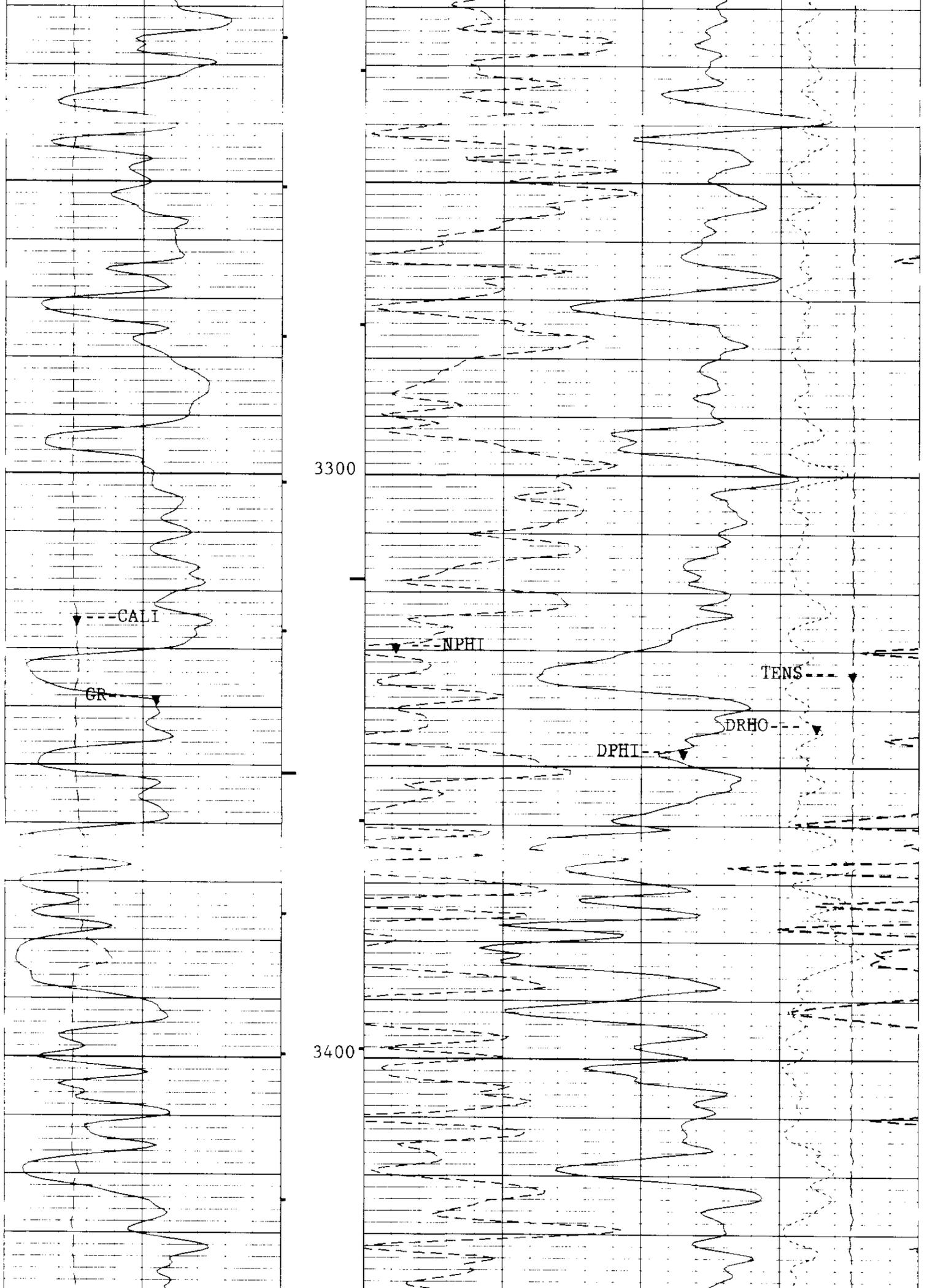
DRHO

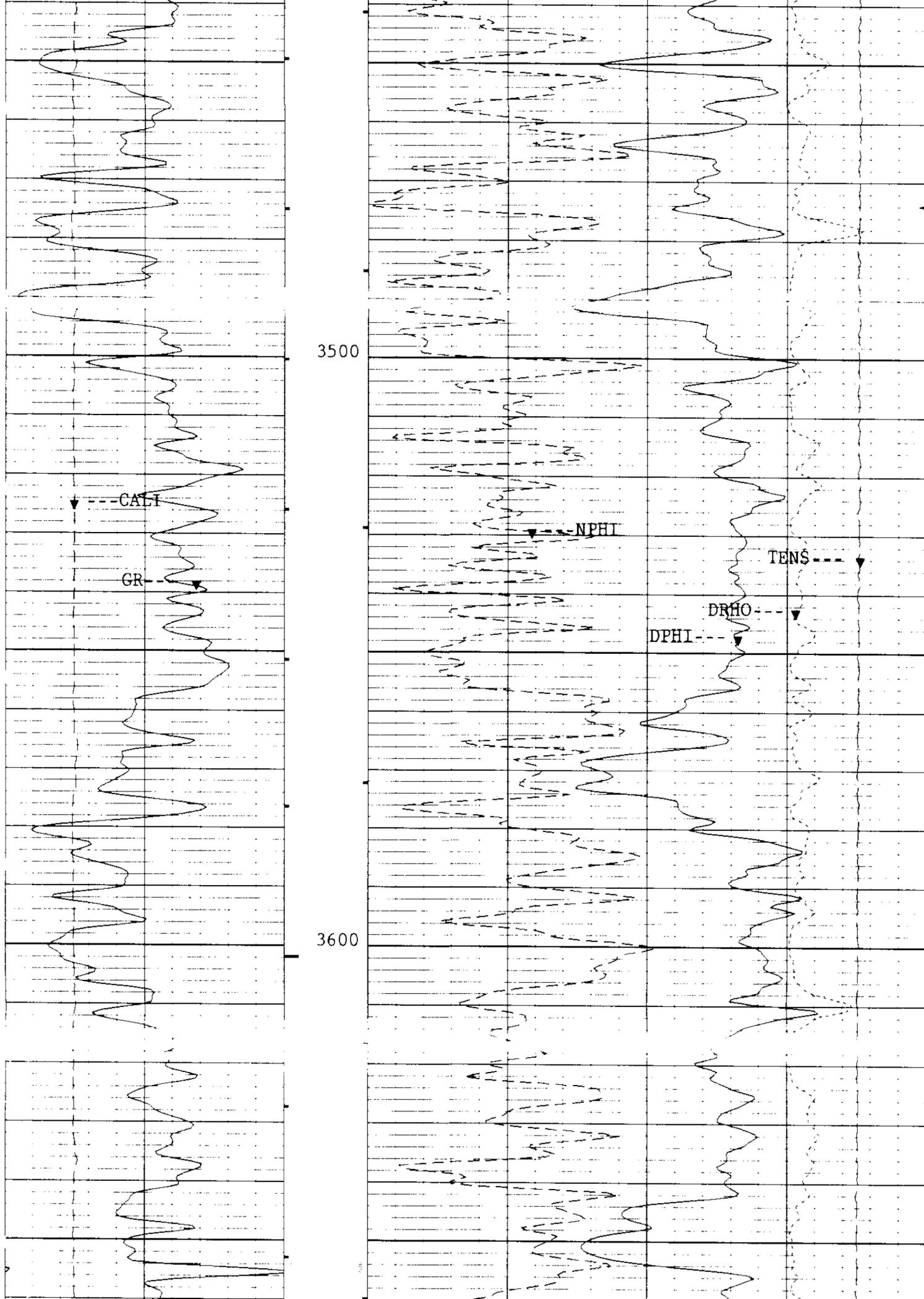
NPHI

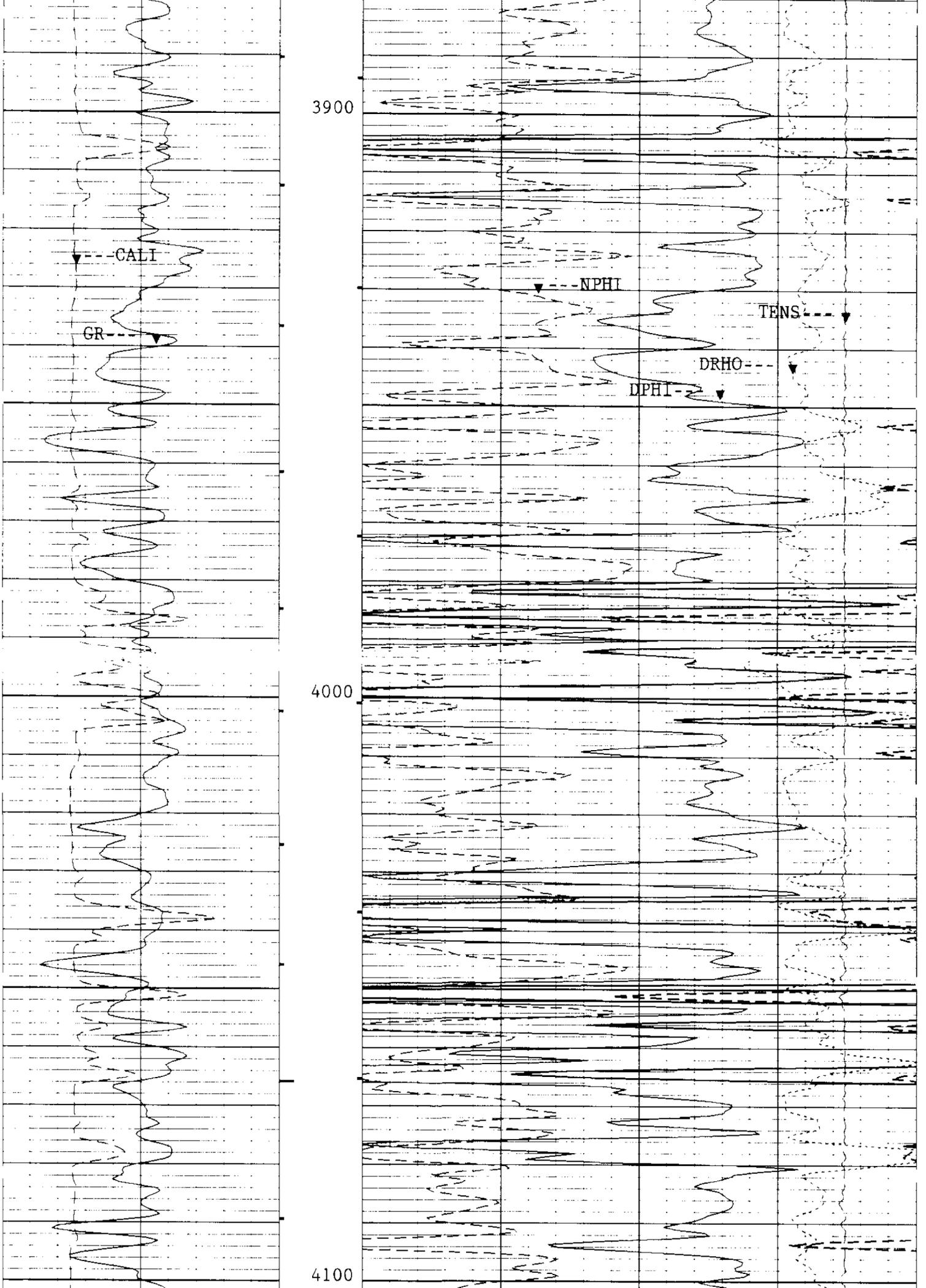
TENS

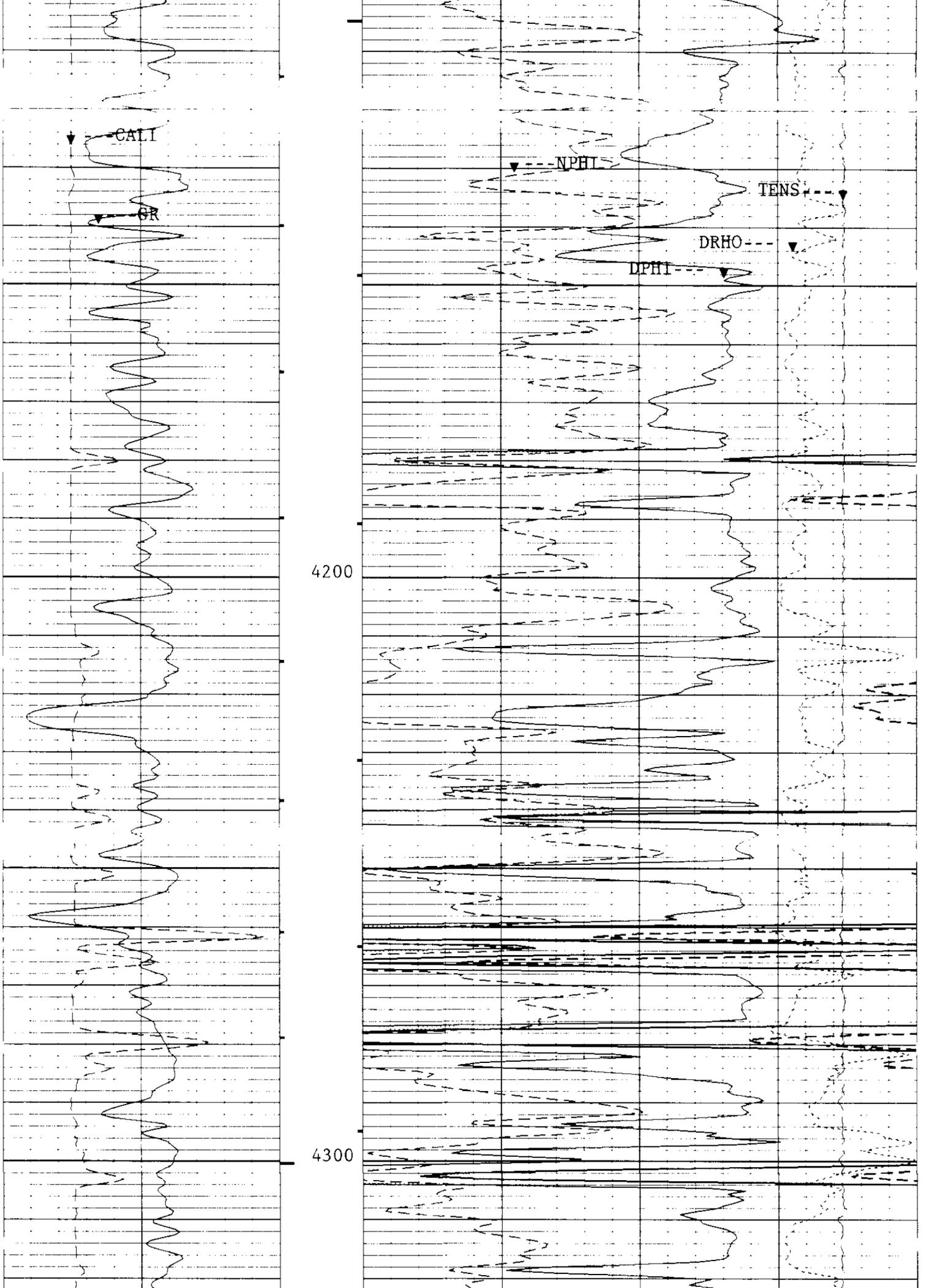


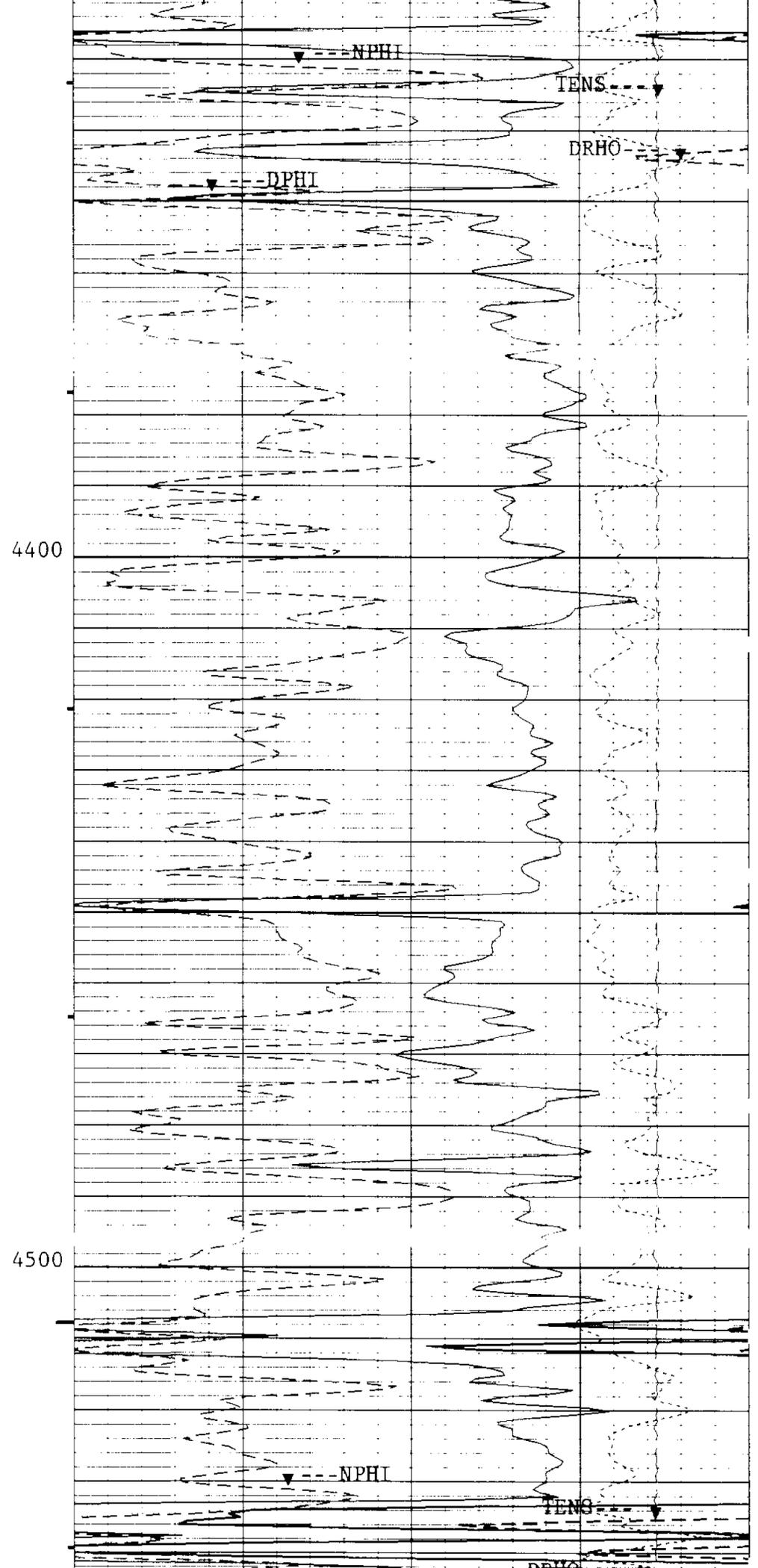
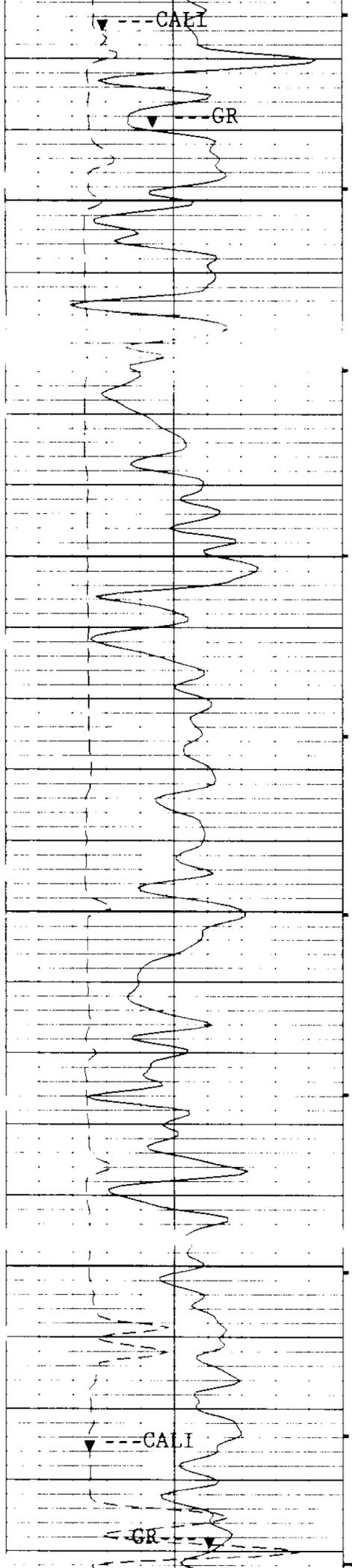






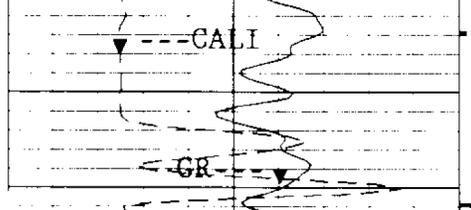


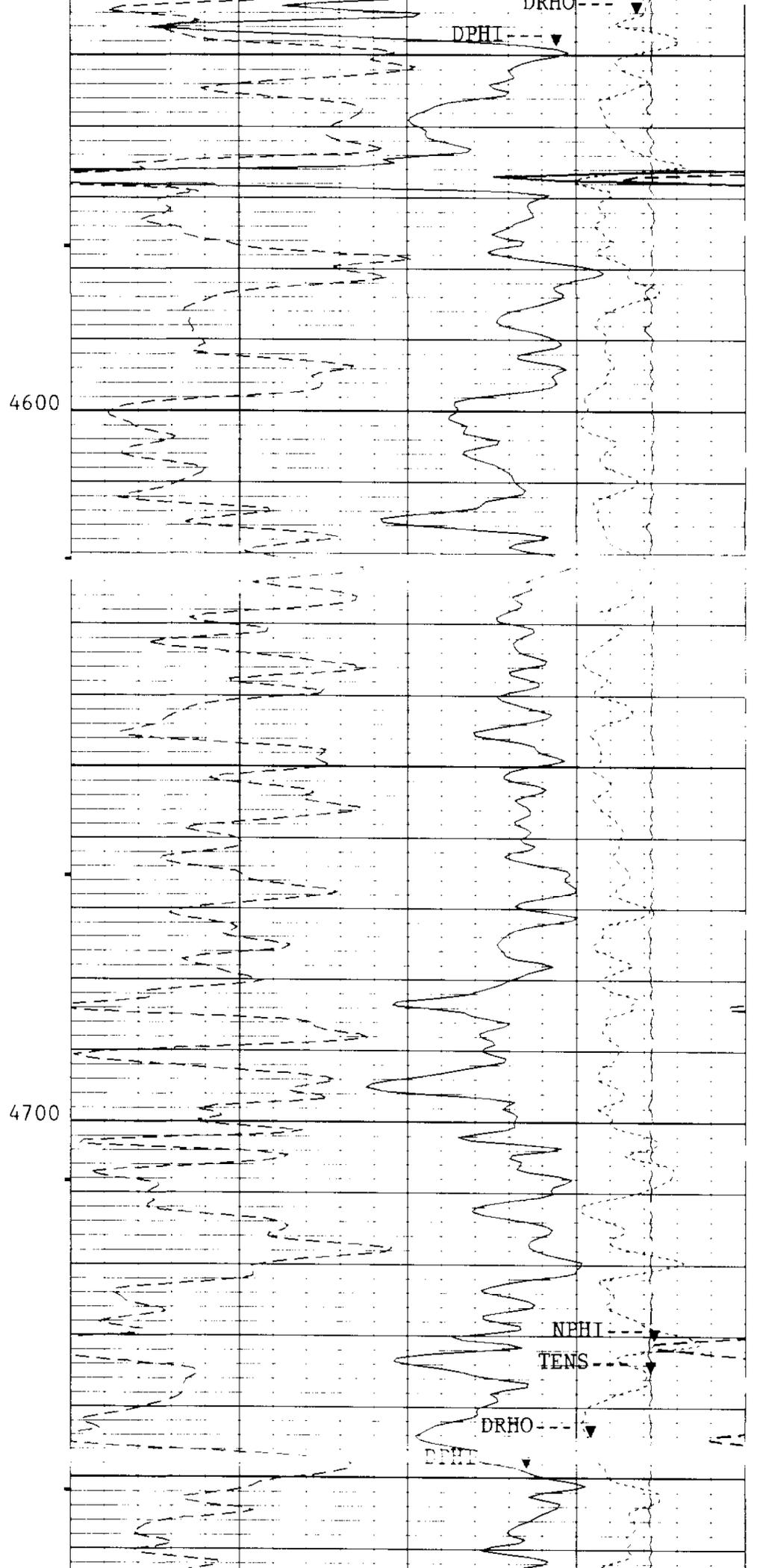
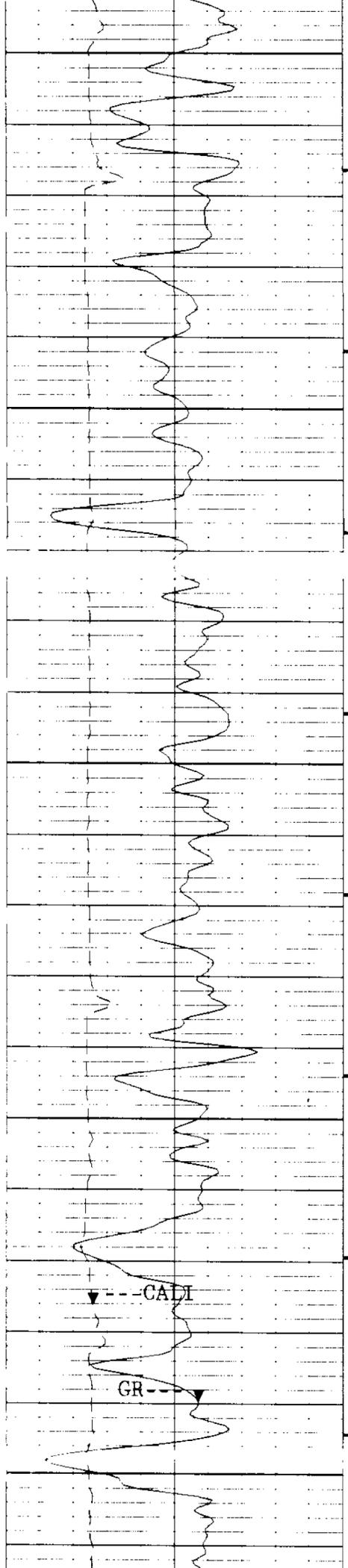


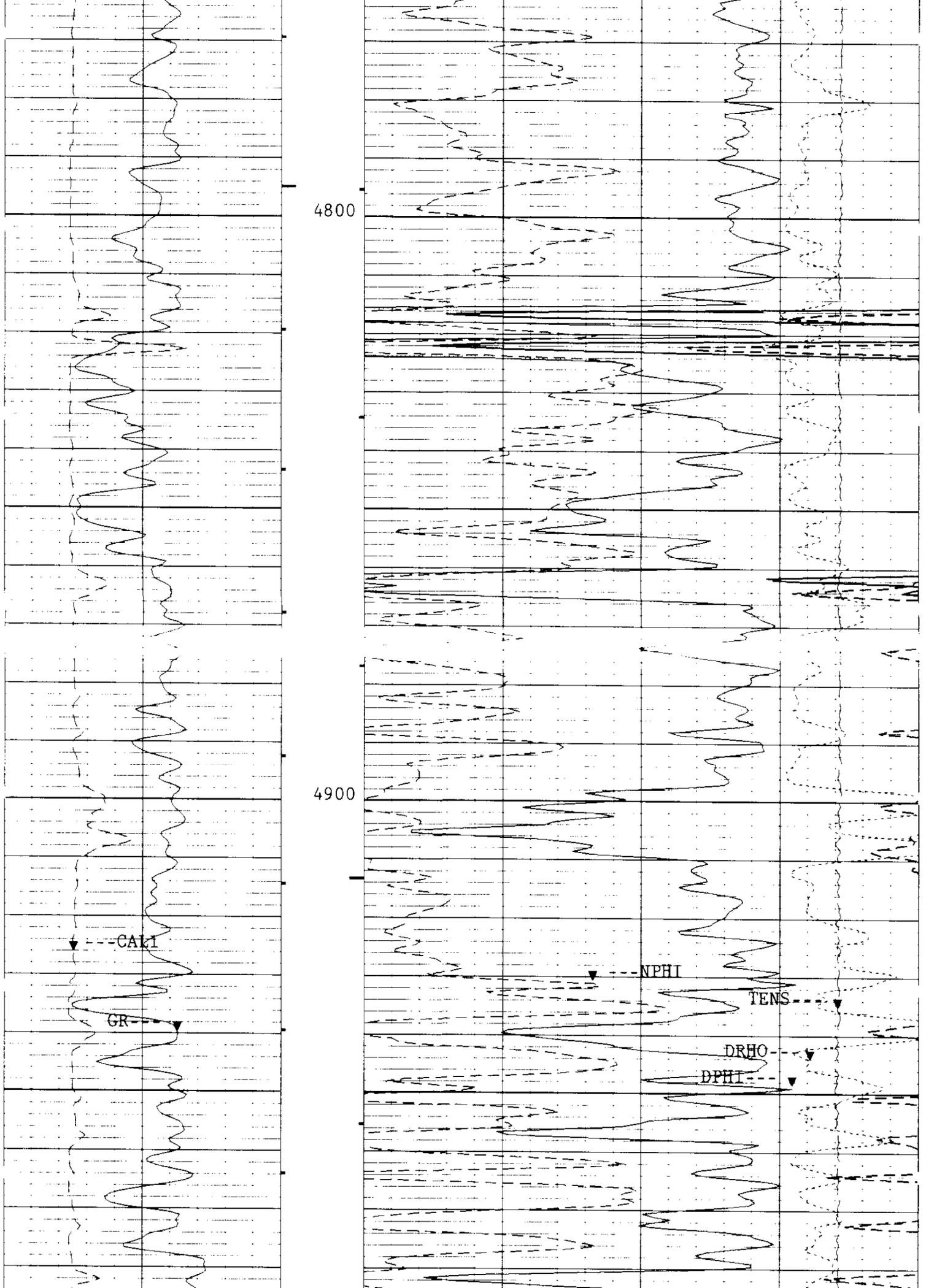


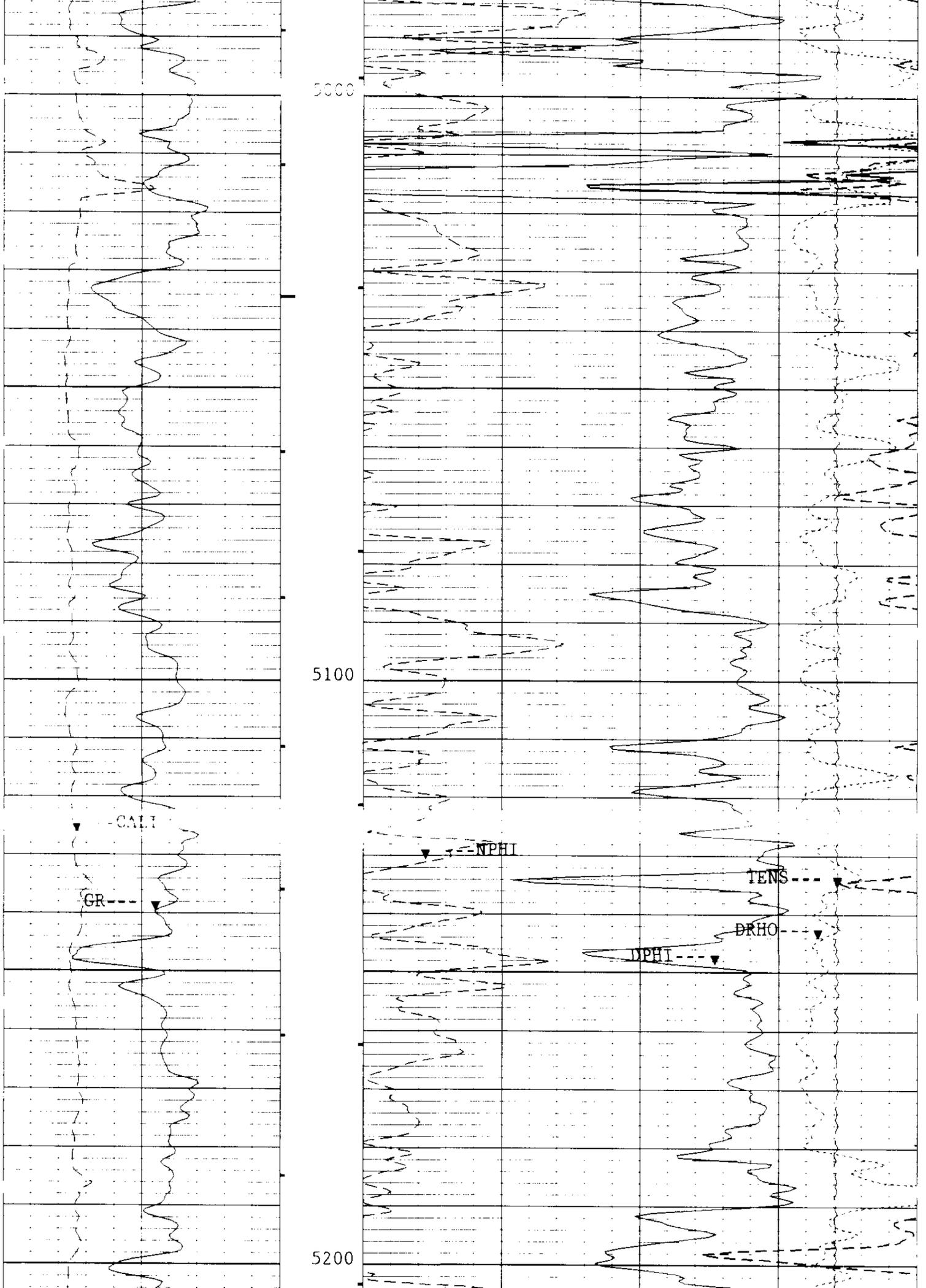
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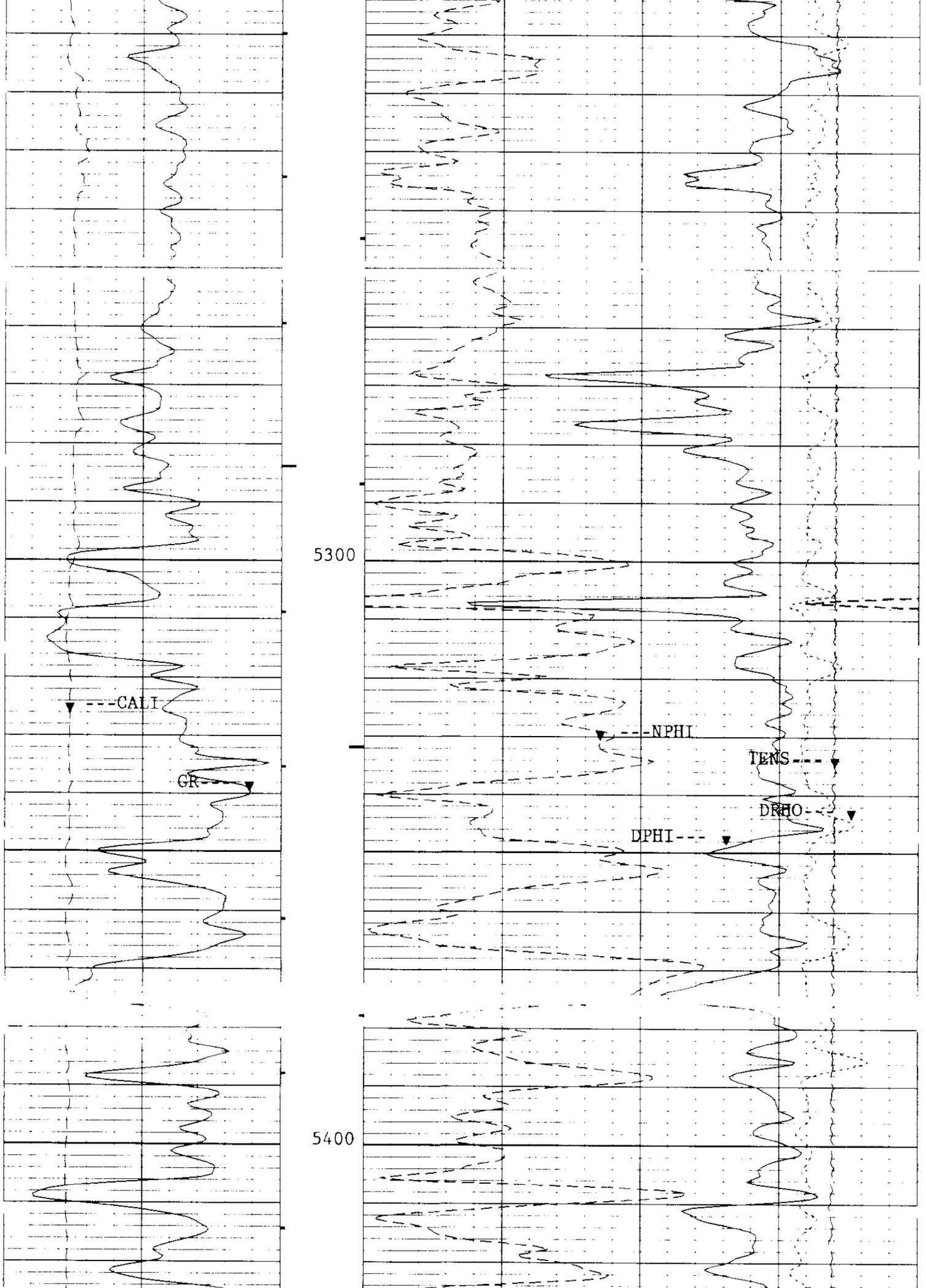
4500

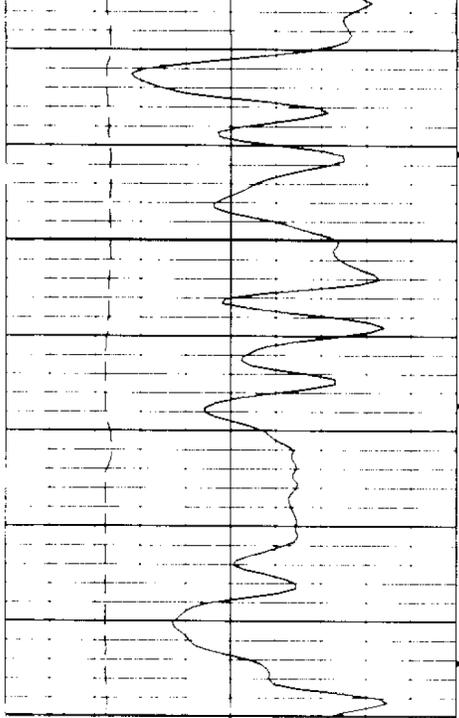




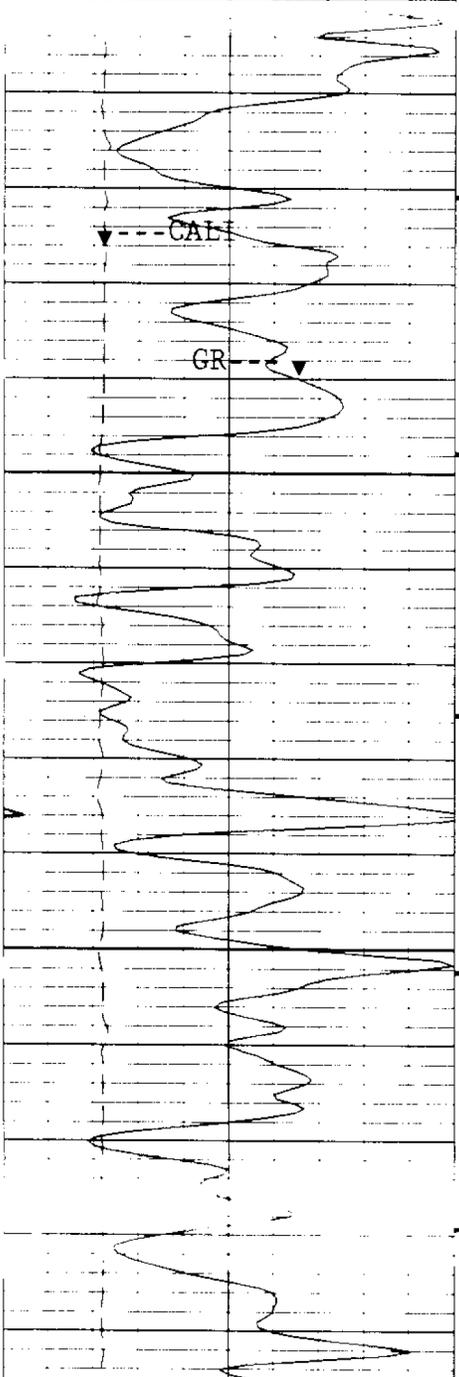
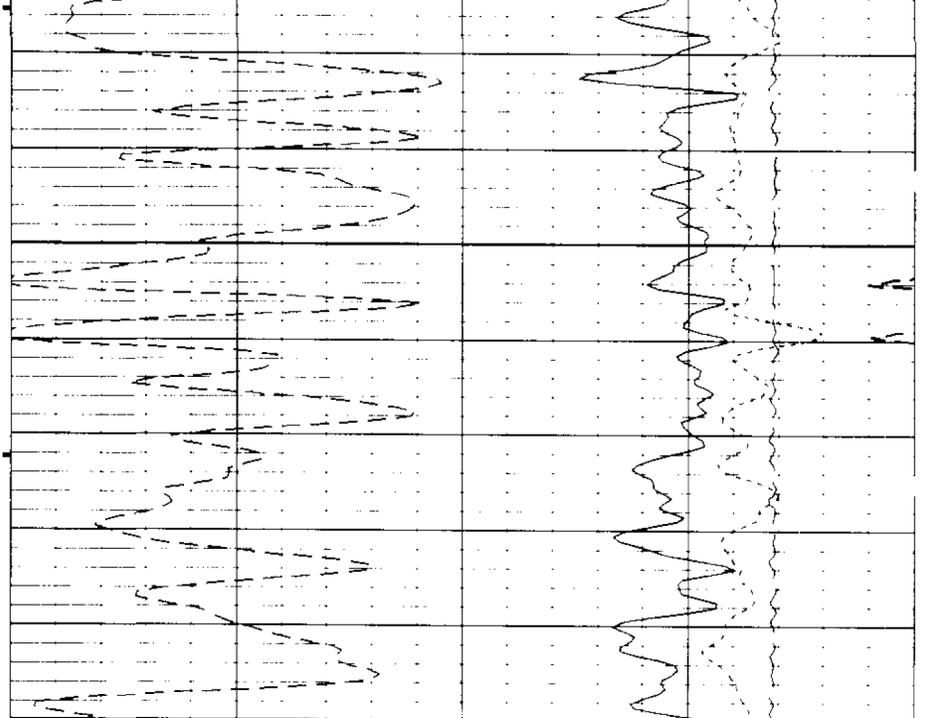




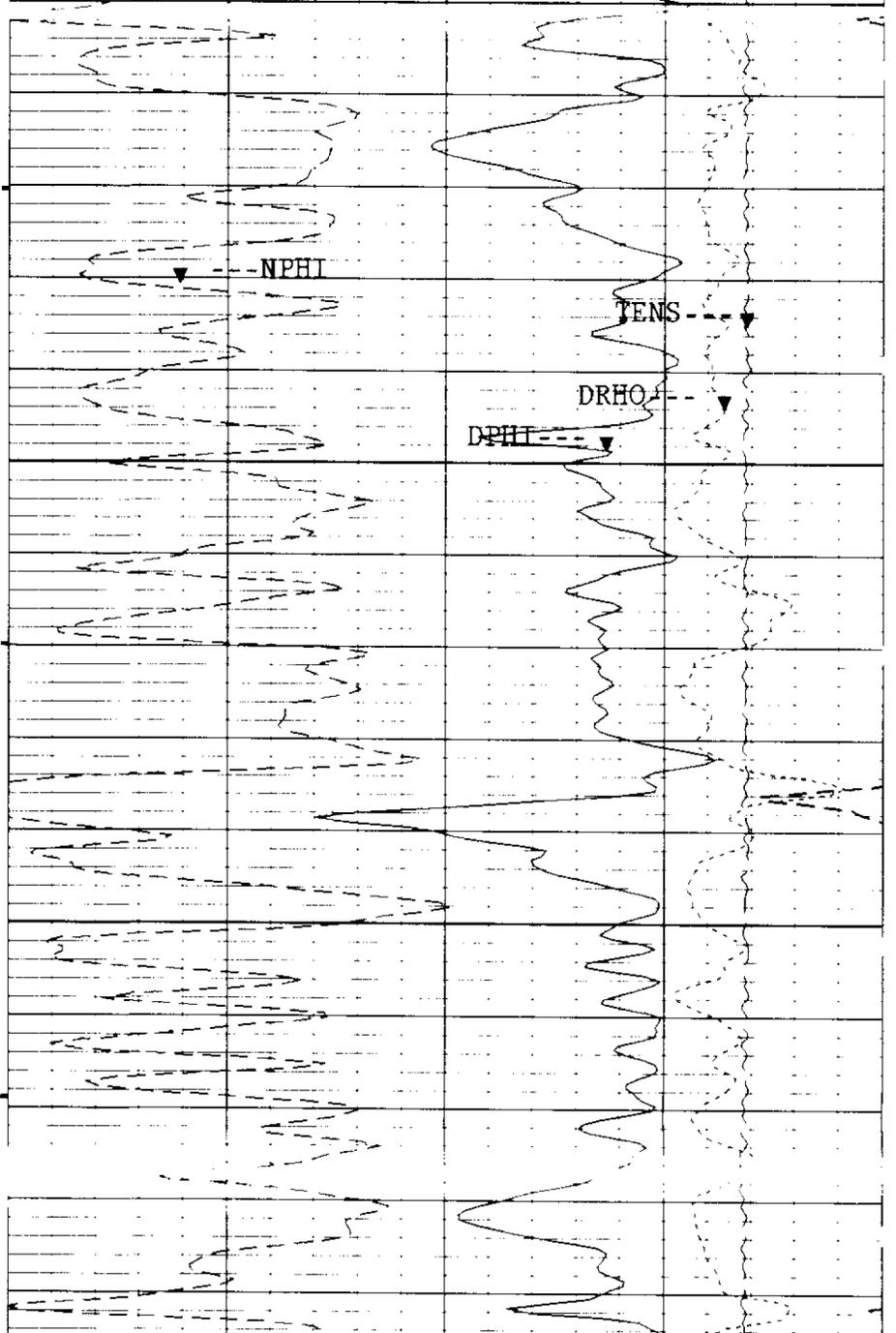


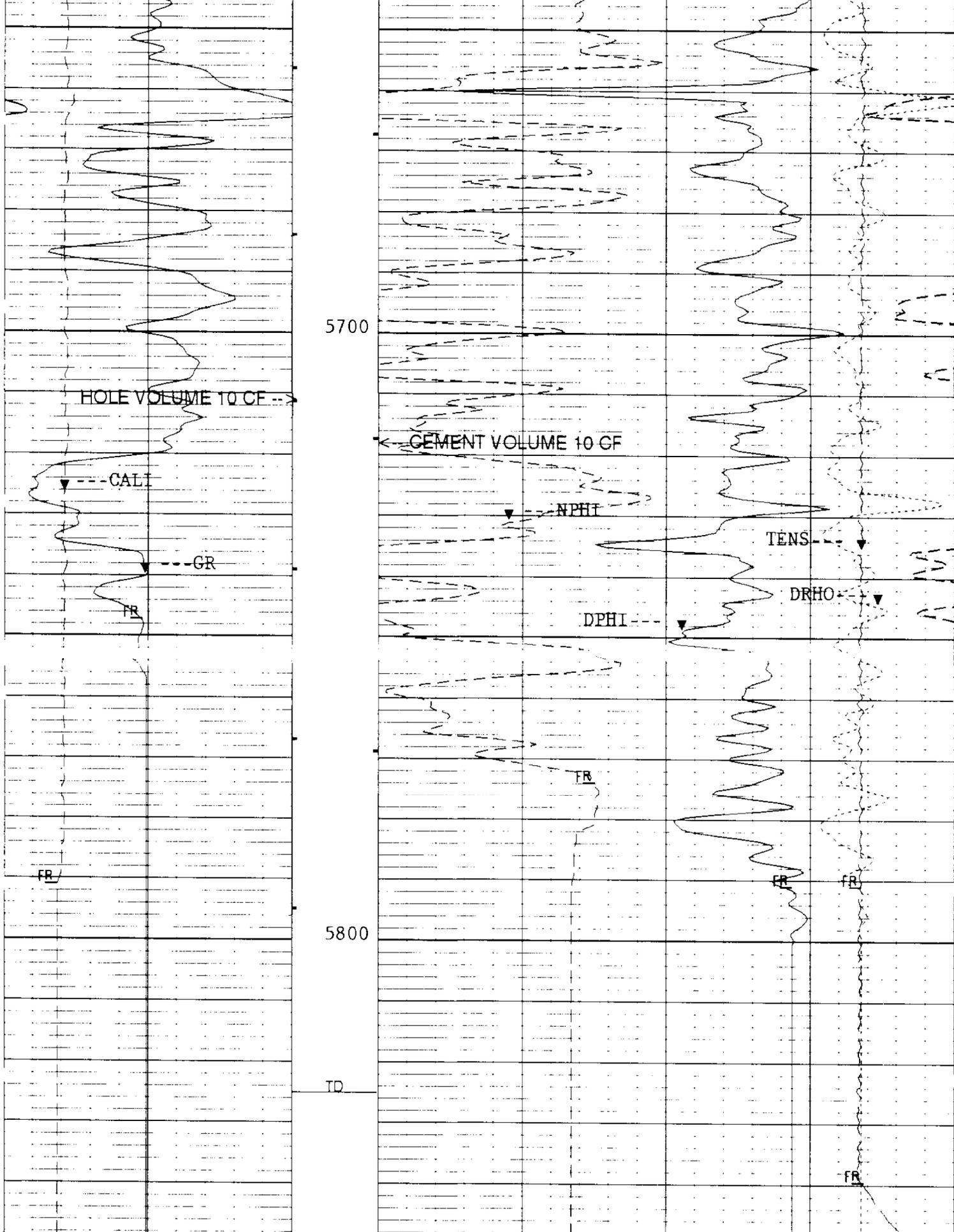


5500



5600





5"/100'

CP 40.2

FILE 2

22-OCT-1994 12:53

SANDSTONE (2.68 G/CC)

INPUT FILE(S) CREATION DATE

CALI(IN)		NPHI(V/V)	
6.0000	16.000	30000	-1.000
0.0	200.00	30000	-1.000

DRHO(G/C3)		DPHI(V/V)	
10000	0.0		
-2500	25000		

SENSOR MEASURE POINT TO TOOL ZERO

GR	77.8	FEET	SP	10.3	FEET
IRM	6.0	FEET	IXM	6.0	FEET
ITEM	6.5	FEET	IXD	9.5	FEET
SFB	6.5	FEET	SPA	10.3	FEET
SFV	6.5	FEET	SFC	6.5	FEET
SA	70.5	FEET	IRD	9.5	FEET
SPCD	70.5	FEET	LA	70.5	FEET
CNTC	51.0	FEET	CFTC	51.5	FEET
LL	33.9	FEET	LITH	33.9	FEET
LU	33.9	FEET	LS	33.9	FEET
SS1	33.4	FEET	PARI	33.4	FEET
CALI	34.0	FEET	SS2	33.4	FEET
MNOR	70.5	FEET	TENS	-14.7	FEET
TNRA	52.0	FEET	MINV	70.5	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PP	NORM		DO	0.0	F
WMUD	8.30000	LB/G	TD	5825.00	F
FCD	5.50000	IN	DHC	BS	
BFM	LIQU		MDEN	2.68000	G/C3
FD	1.00000	G/C3	DPPM	SIAN	
MATR	SAND		HC	CALI	
NPDC	0		HSCO	YES	
SOCO	NO		MCCO	NO	
BSCO	NO		FSCO	NO	
MWCO	NO		PTCO	NO	
CCCO	NO		SDAT	SOCN	
MCOR	NATU		SOCN	.500000	IN
FSAL	-50000.0	PPM	ANGL	0.0	DEG
GGRD	.0100000	DF/F	BHFL	WATE	
IFRS	20	KHZ	SBR	1.00000	OHMM
MXE2	102.891	MM/M	DXE2	95.5788	MM/M
MRE2	10.2060	MM/M	DRE2	13.4785	MM/M
MPH2	-.834638	DEG	DPH2	-.043685	DEG
MGF2	1.00661		DGF2	.999629	
DESP	DISA		SFLE	ALLO	
DCAS	472.000	F	ITEN	ALLO	
DEVI	0.0	DEG	DSES	INVE	
IPRO	STAN		IPHA	NORM	
CDSE	RHOB		CNPS	NPHI	
NCJT	GSRY		GTSE	TEMP	
SHT	80.0000	DEGF	BHT	180.000	DEGF
SPAE	ALLO		TDL	5825.00	F
MRT	154.000	DEGF	BSAL	1500.00	PPM
DFD	8.30000	LB/G	RMFS	1.39000	OHMM

MFST 68.0000
BHS OPEN

DEGF

BS 7.87500

IN

ACCUMULATED INTEGRATION VALUES SUMMARY:

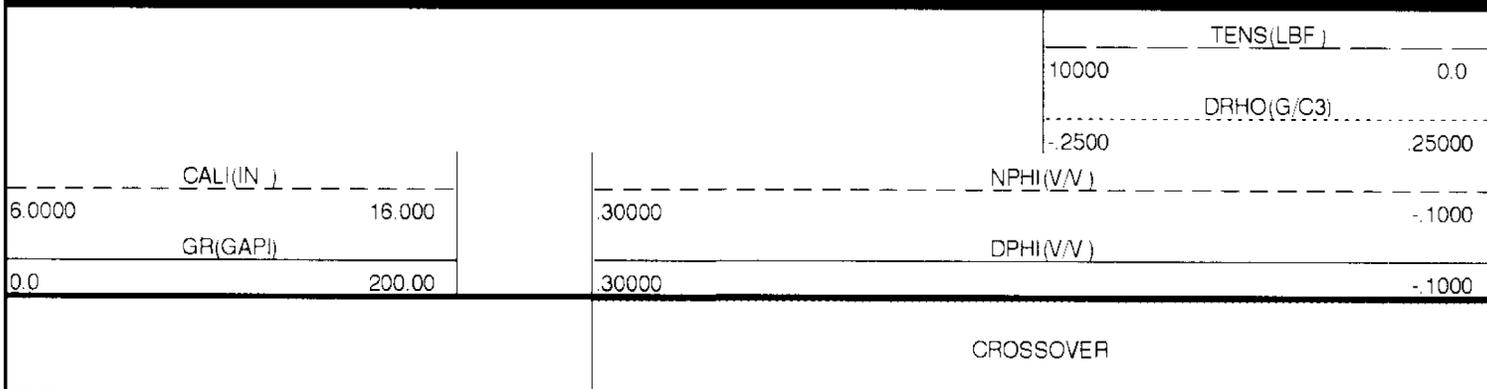
Integrated Hole Volume: 129.772 F3 FROM 5825.00 F TO 5487.50 F
Integrated Cement Volume: 70.2945 F3 FROM 5825.00 F TO 5487.50 F
(ASSUMING 5.50000 IN O.D. CASING)

EVENT MARK SUMMARY:

OUTPUT INTERVAL DEPTH TRACK
BETWEEN PIPS EDGE
Integrated Hole Volume 10.0000 F3 LEFT EDGE
Integrated Cement Volume 10.0000 F3 RIGHT EDGE

CHANGED PARAMETERS

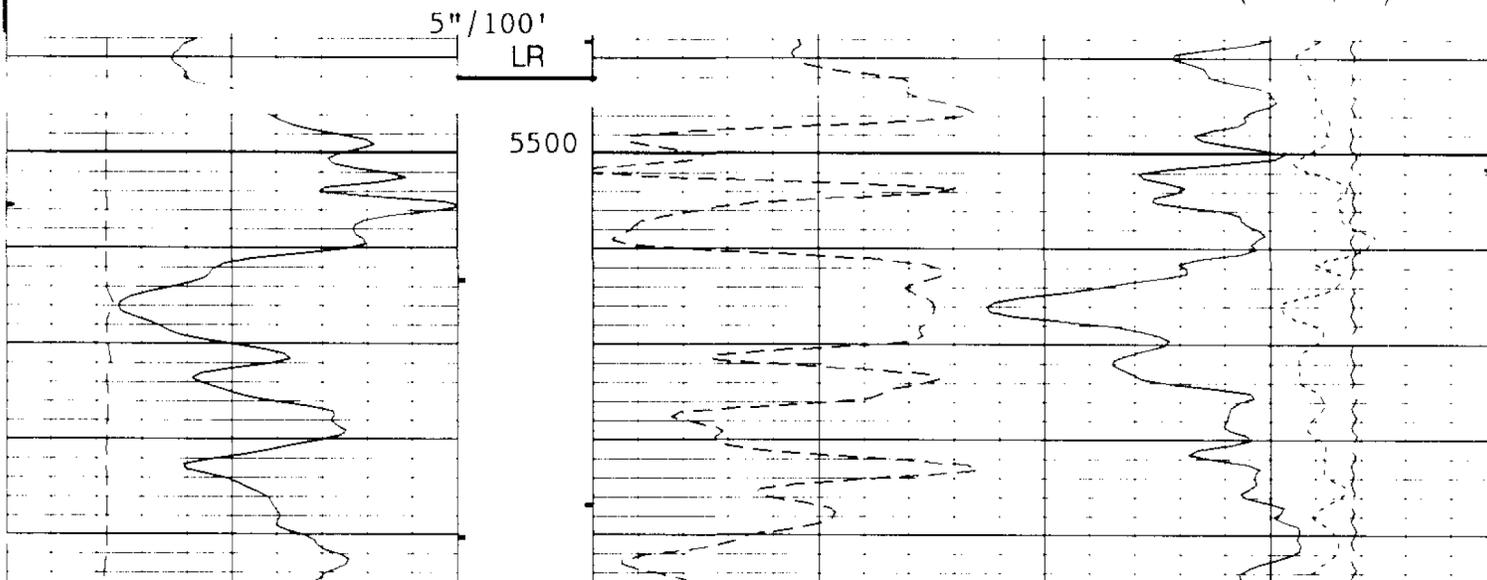
NAME	VALUE	UNIT	DEPTH (F)	NAME	VALUE	UNIT	DEPTH (F)
TD	5825.00	F	5762.5				

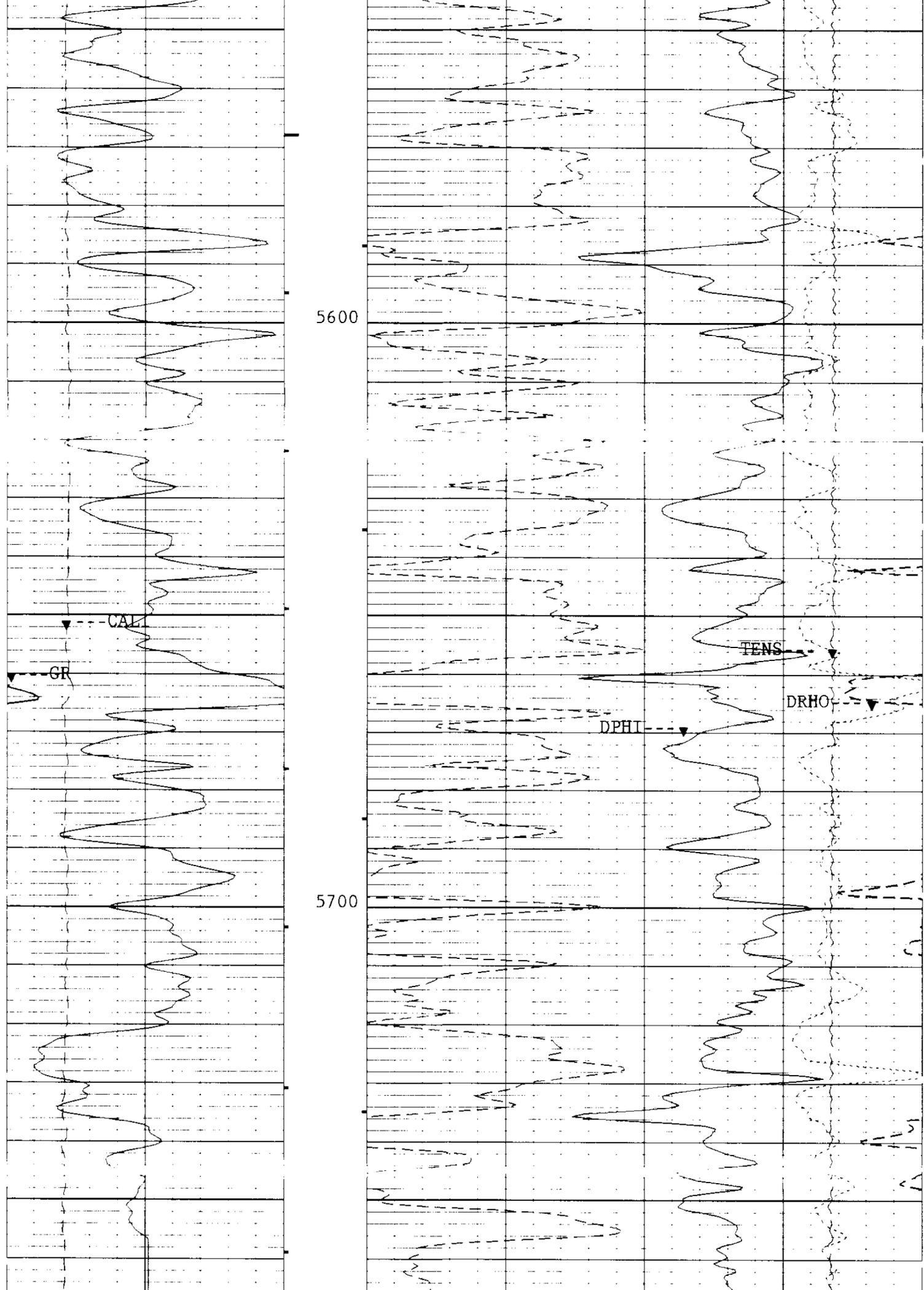


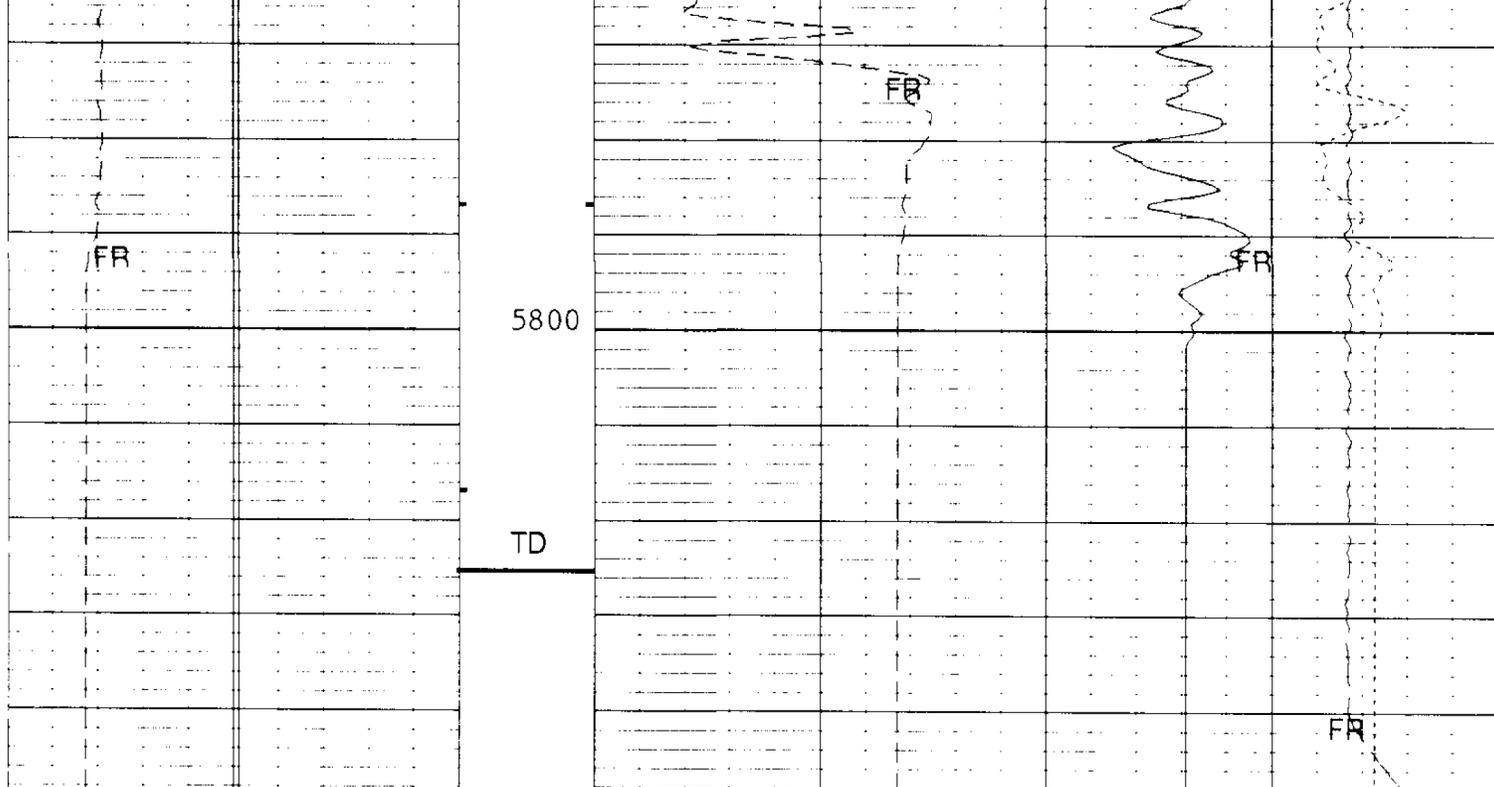
REPEAT SECTION

CP 40.2 FILE 8 22-OCT-1994 10:25 (UP)

SANDSTONE (2.68 G/CC)







5"/100'

REPEAT SECTION

CP 40.2

FILE 8

22-OCT-1994 10:12

(UP)

SANDSTONE (2.68 G/CC)

CALI(IN)		NPHI(V/V)	
6.0000	16.000	30000	-1000
0.0	200.00	30000	-1000

DRHO(G/C3)		DPHI(V/V)	
10000.	0.0	30000	-1000
-2500	25000	30000	-1000

SENSOR MEASURE POINT TO TOOL ZERO

DITE 10.3 FEET
 DTT -14.7 FEET
 CNTH 52.0 FEET

SGTL 77.8 FEET
 LDTD 34.0 FEET
 PCDB 70.5 FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WMUD	8.30000	LB/G	TD	32768.0	F
FCD	5.50000	IN	DHC	BS	
BFM	LIQU		MDEN	2.68000	G/C3
FD	1.00000	G/C3	DPPM	STAN	
MATR	SAND		HC	CALI	
NPDC	0		HSCO	YES	
SOCO	NO		MCCO	NO	
BSCO	NO		FSCO	NO	
MWCO	NO		PTCO	NO	
CCCO	NO		SDAT	SOCN	
MCOR	NATU		SOCN	.500000	IN
ESAL	50000.0	BPM	ANCI	0.0	DEG

PSAL -50000.0	PPM	ANGL 0.0	DEG
GGRD .0100000	DF/F	BHFL WATE	
IFRS 20	KHZ	SBR 1.00000	OHMM
MXE2 102.891	MM/M	DXE2 95.5788	MM/M
MRE2 10.2060	MM/M	DRE2 13.4785	MM/M
MPH2 -.834638	DEG	DPH2 -.043685	DEG
MGF2 1.00661		DGF2 .999629	
DESP DISA		SFLE ALLO	
DCAS 472.000	F	ITEN ALLO	
DEVI 0.0	DEG	DSES INVE	
IPRO STAN		IPHA NORM	
CDSE RHOB		CNPS NPHI	
NCJT GSRV		GTSE TEMP	
SHT 80.0000	DEGF	BHT 180.000	DEGF
SPAE ALLO		BSAL 1500.00	PPM
DFD 8.30000	LB/G	RMFS -50000.0	OHMM
MFST -50000.0	DEGF	BS 7.87500	IN
BHS OPEN			

FILES SPLICED SPLICE DEPTH
 9 TO 10 3655.0 F

ACCUMULATED INTEGRATION VALUES SUMMARY:

Integrated Hole Volume: 2297.98 F3 FROM 5825.00 F TO 426.000 F
 Integrated Cement Volume: 1407.21 F3 FROM 5825.00 F TO 426.000 F
 (ASSUMING 5.50000 IN O.D. CASING)

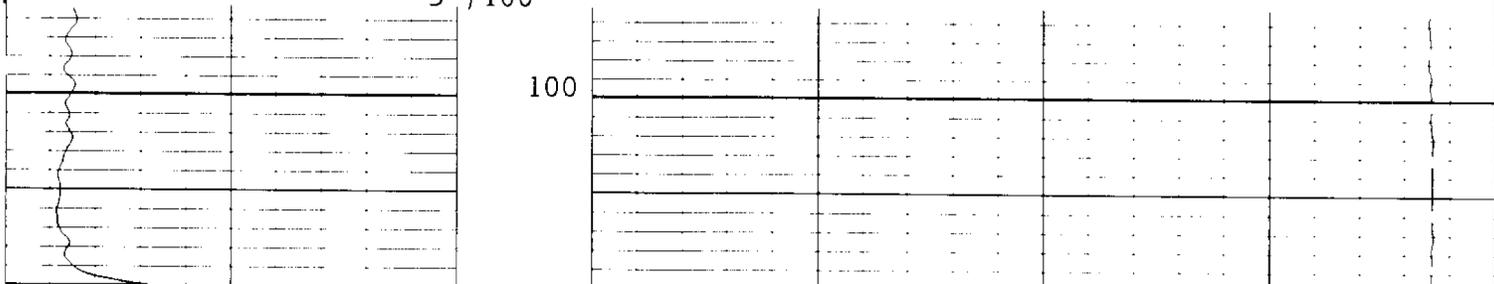
EVENT MARK SUMMARY:

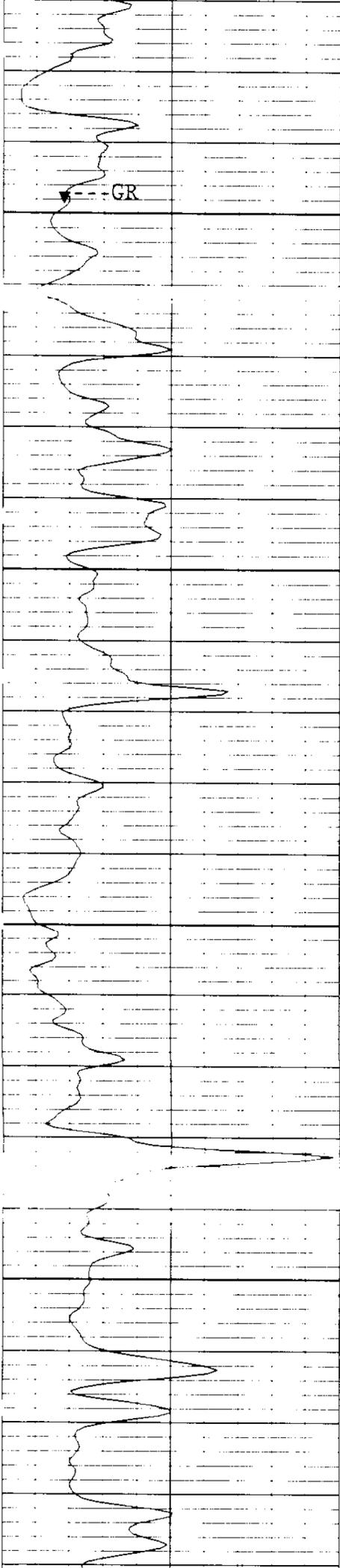
OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
Integrated Hole Volume	10.0000 F3	LEFT EDGE
Integrated Cement Volume	10.0000 F3	RIGHT EDGE

GR(GAPI)		TENS(LBF)	
0.0	200.00	10000.	0.0
BDQC -- Z2			

CP 40.2 FILE 2 22-OCT-1994 13:30
 INPUT FILE(S) CREATION DATE
 10 22-OCT-1994 13:15

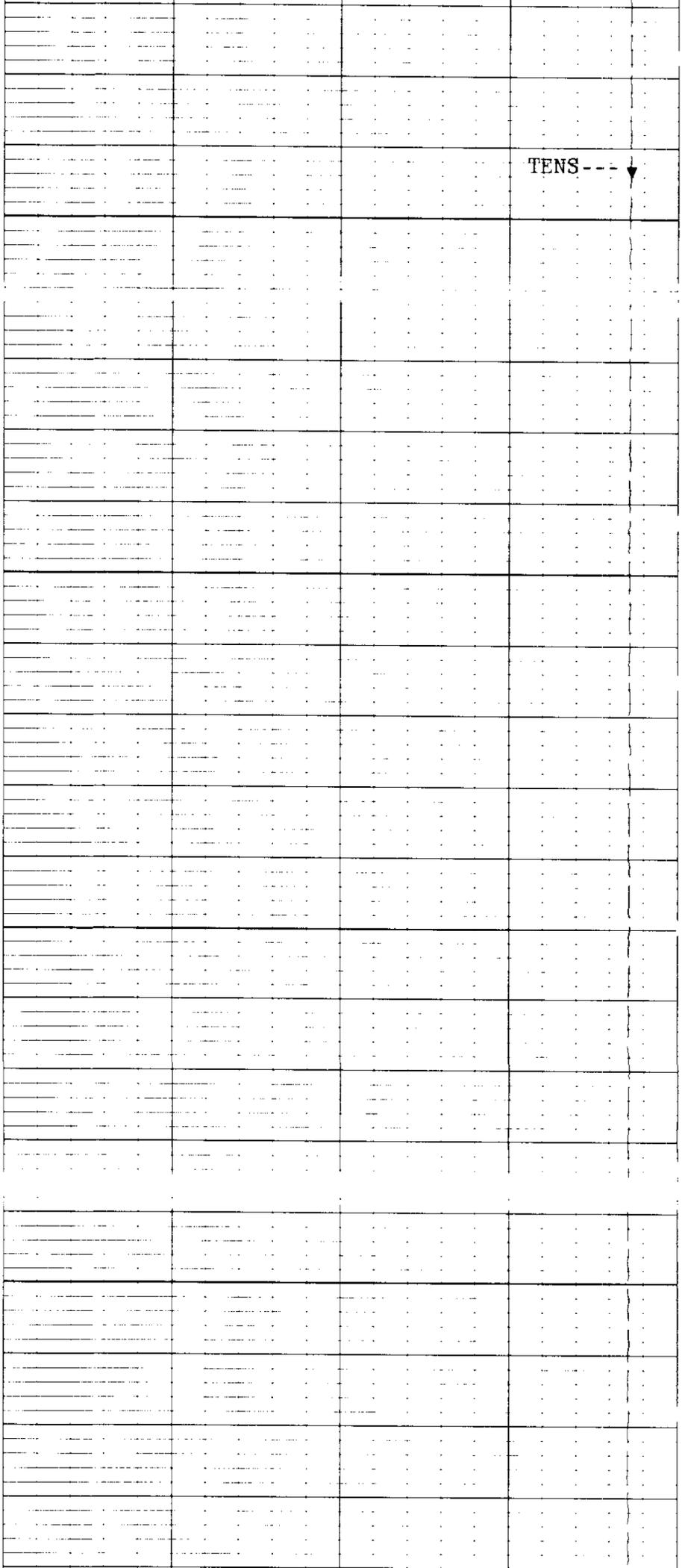
5"/100'

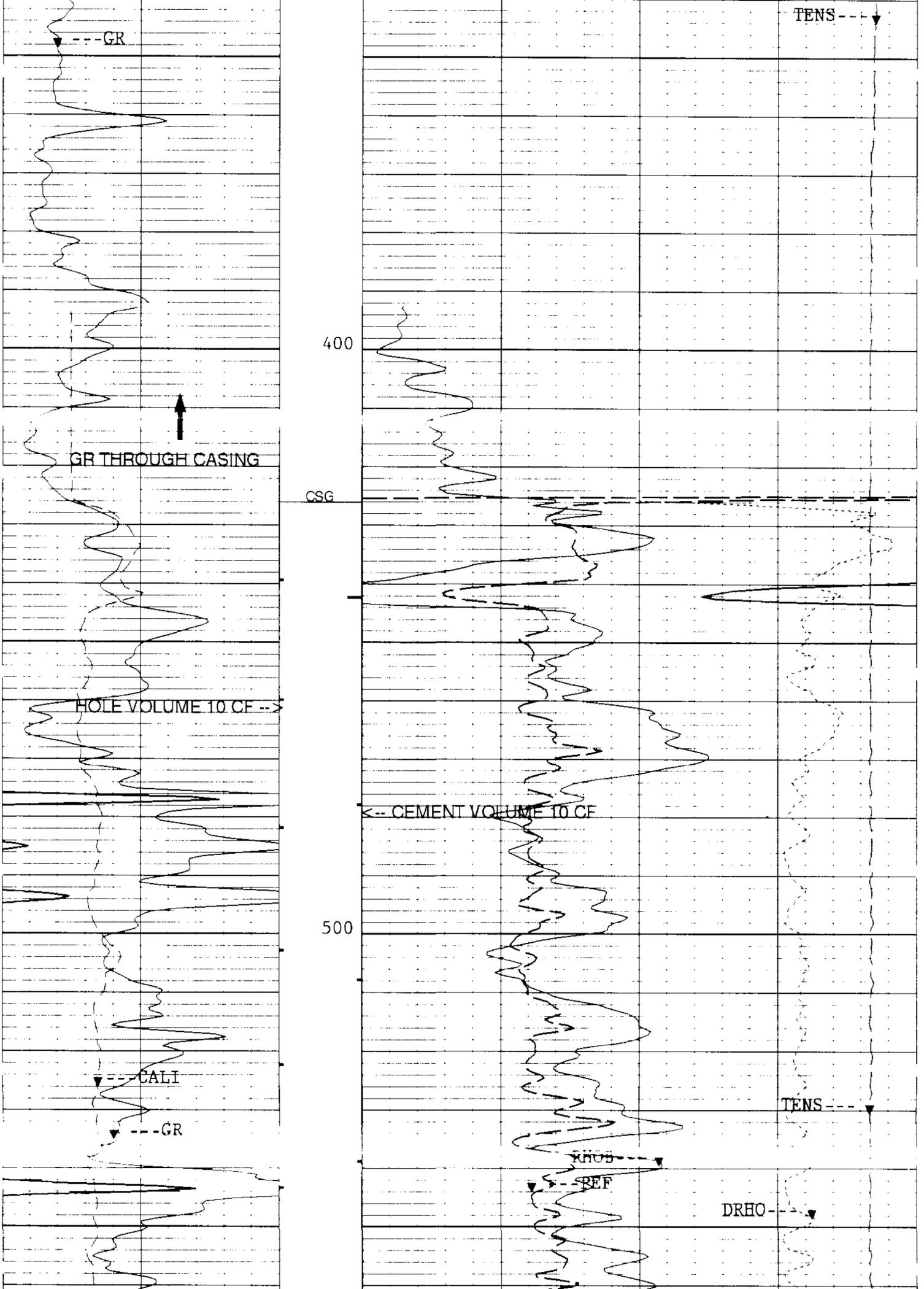




200

300





---GR

TENS---

400

GR THROUGH CASING

CSG

HOLE VOLUME 10 CF -->

-- CEMENT VOLUME 10 CF

500

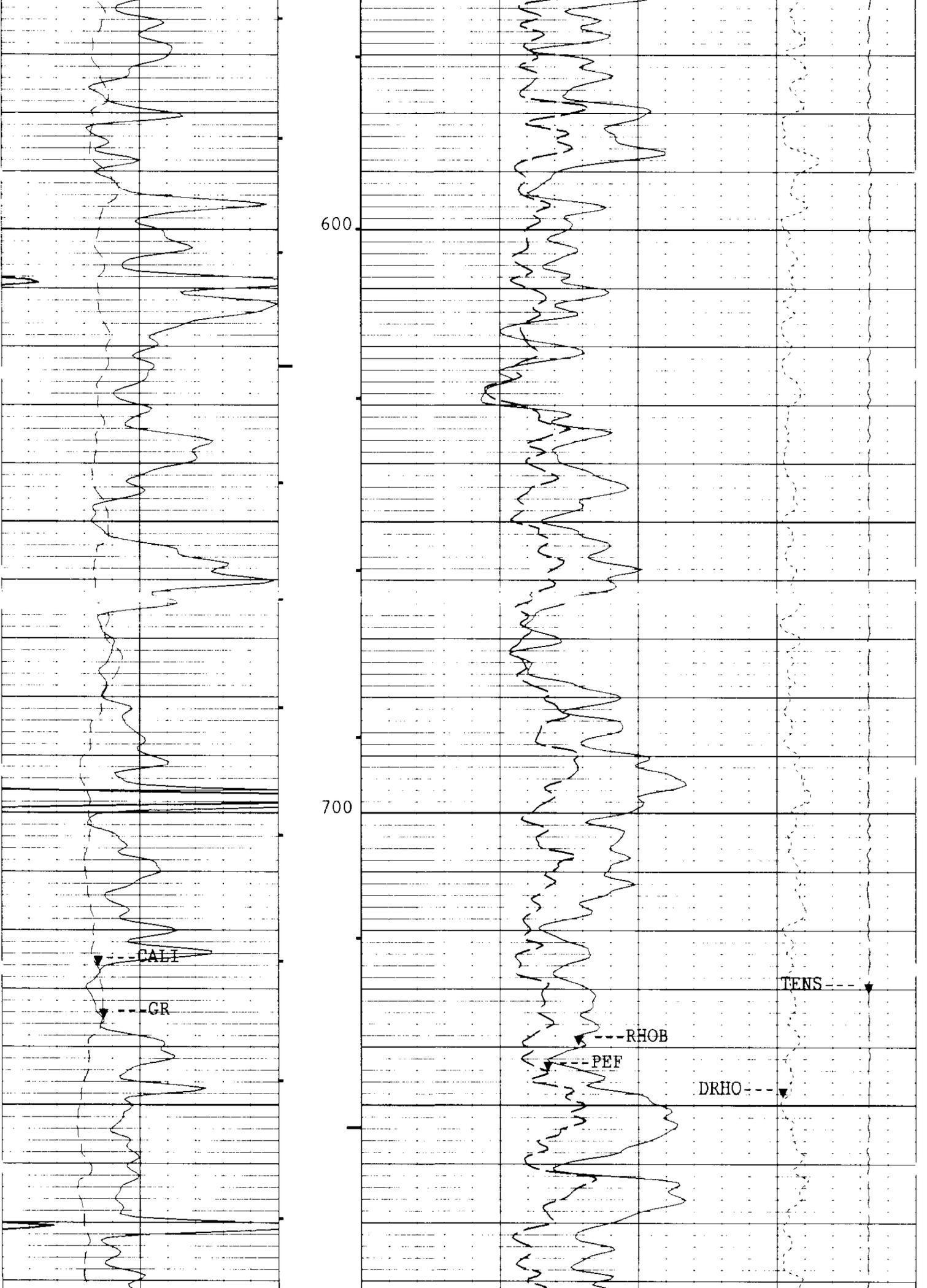
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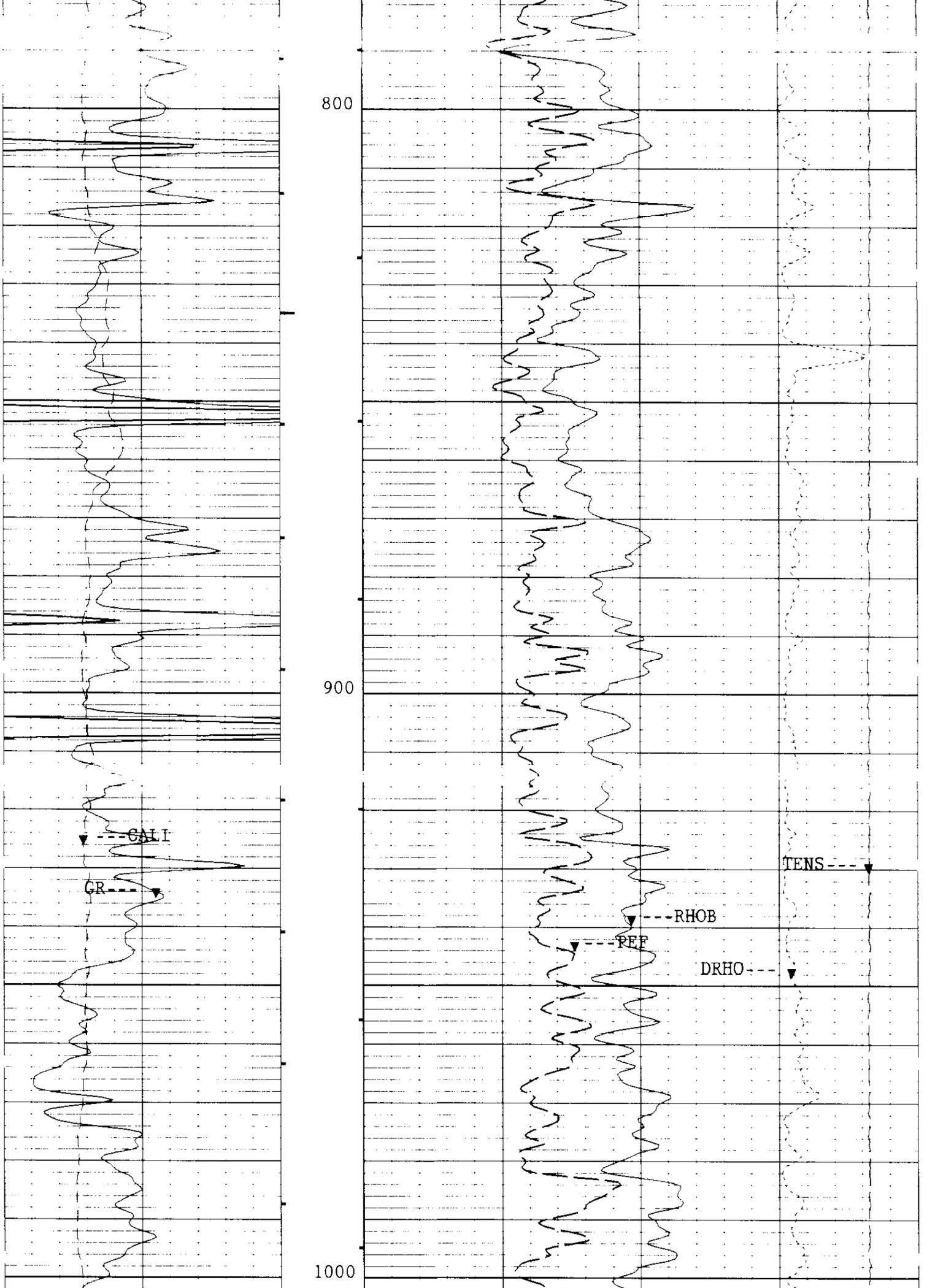
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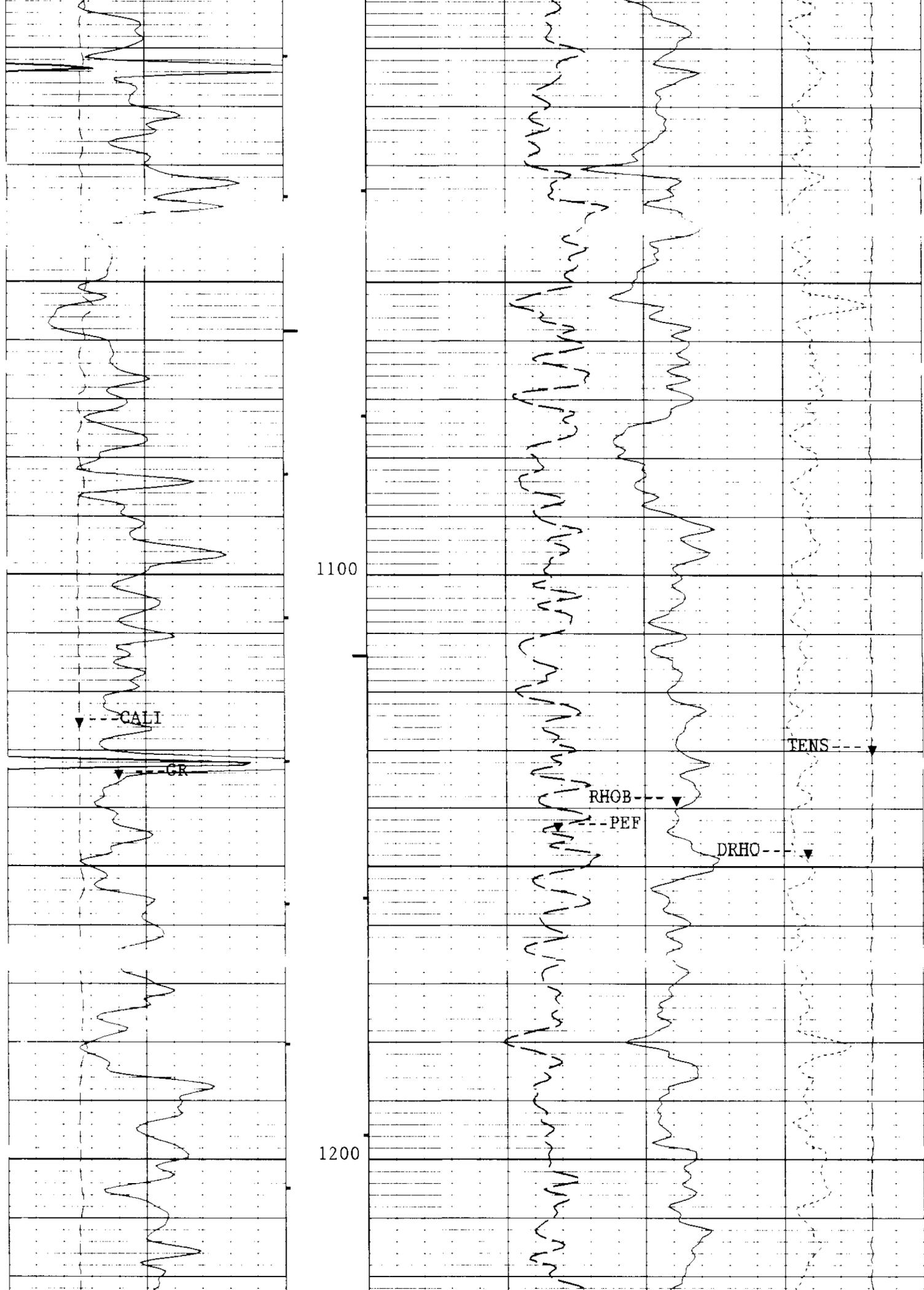
TENS---

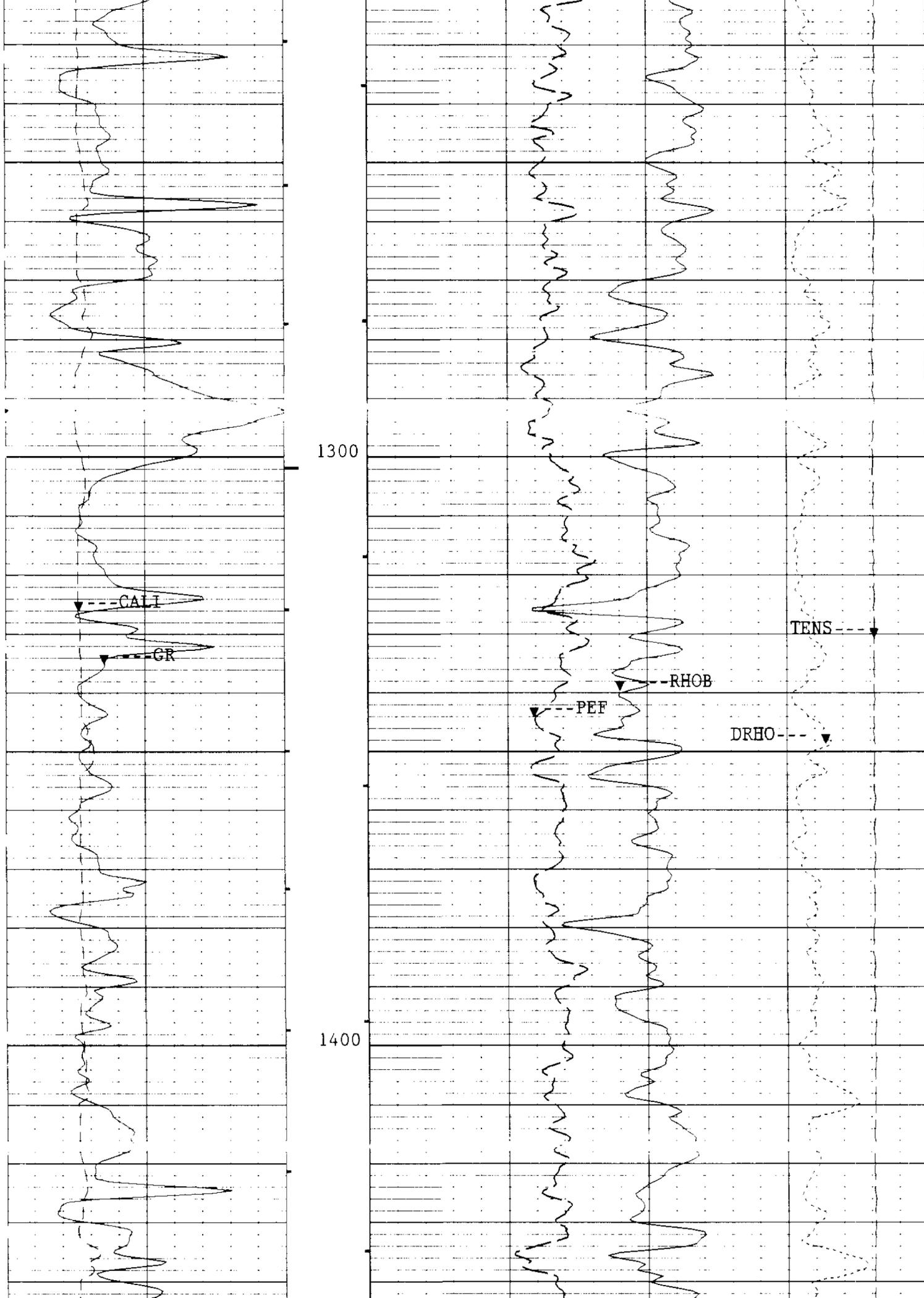
DRHO

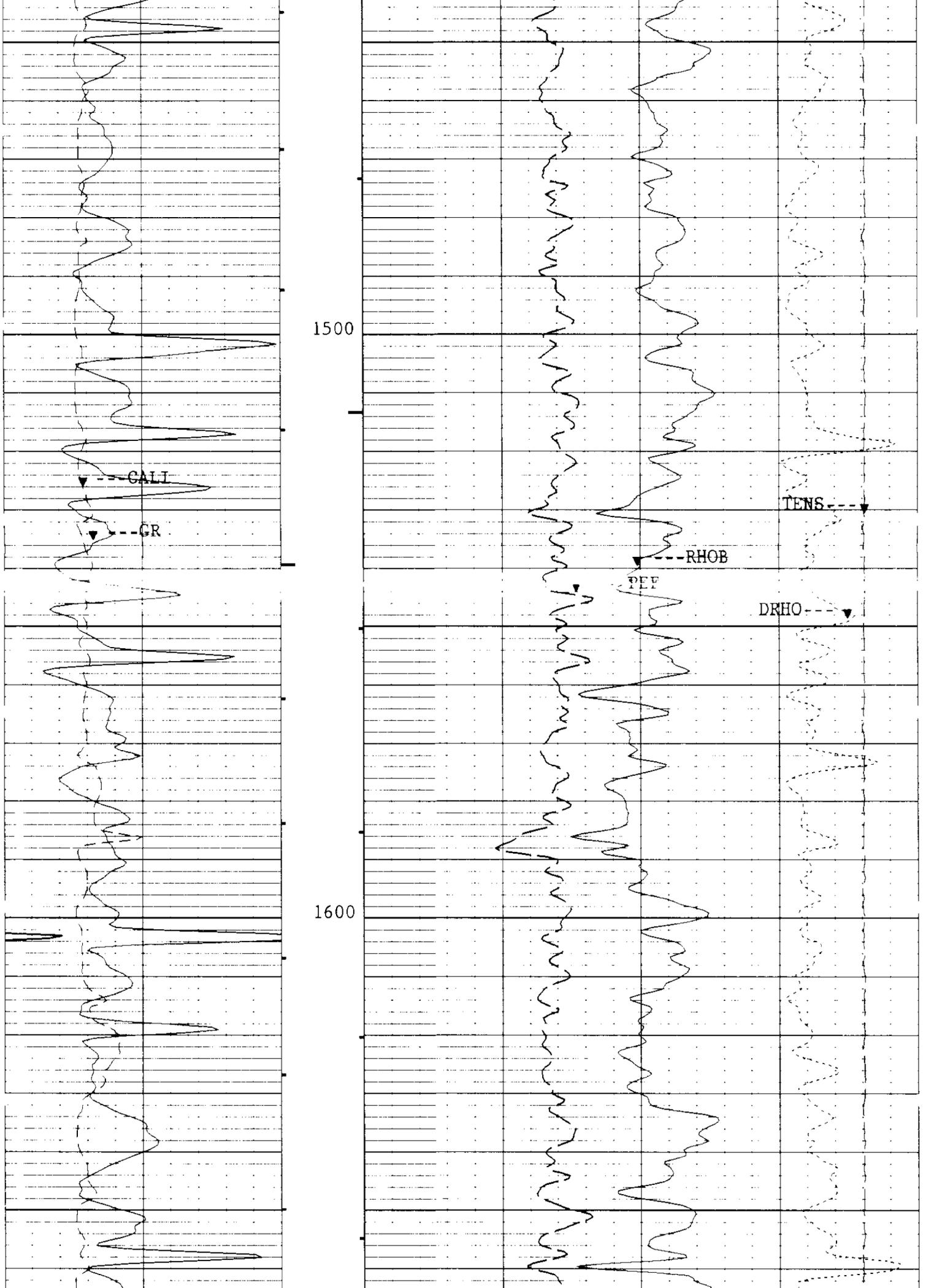
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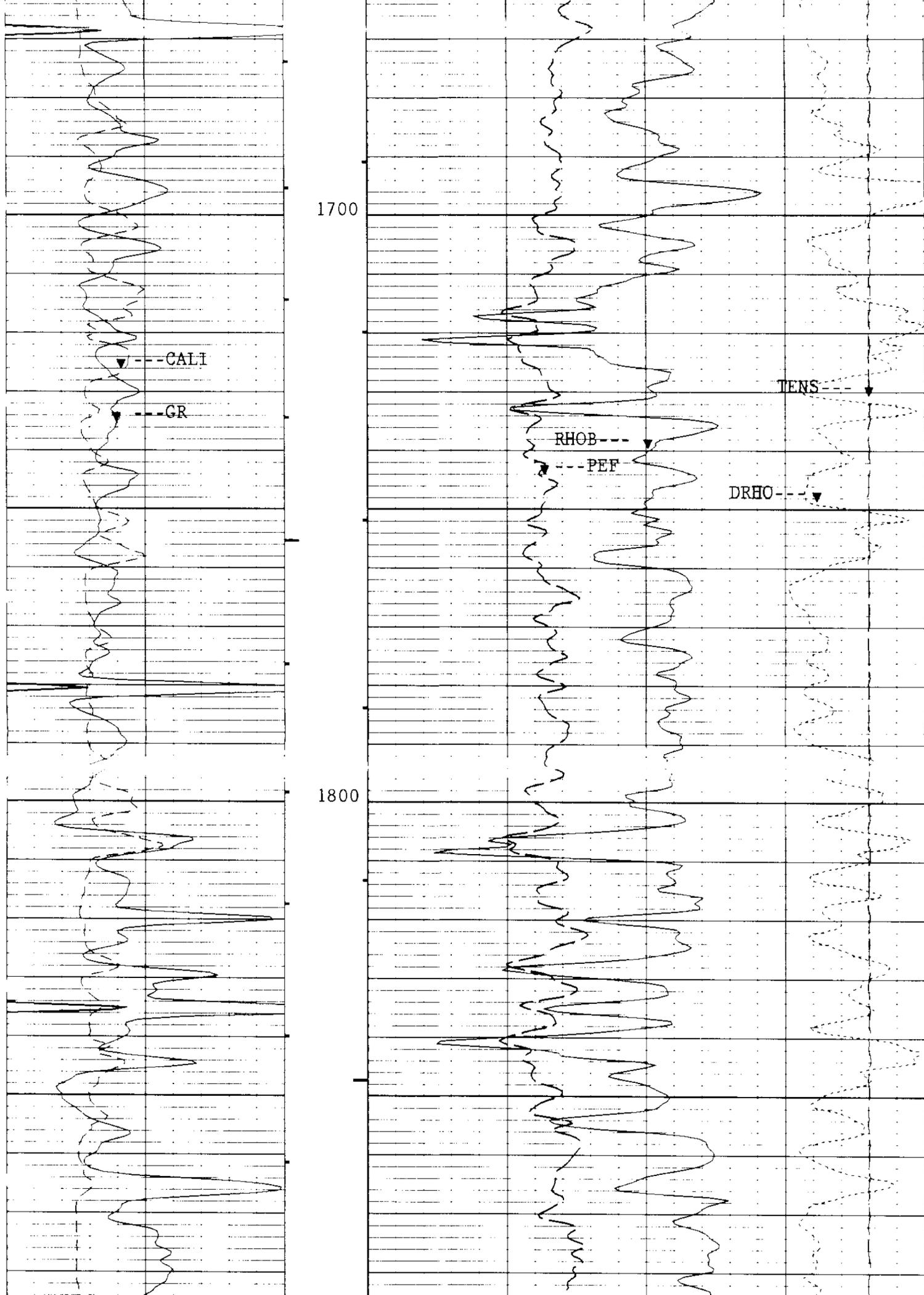


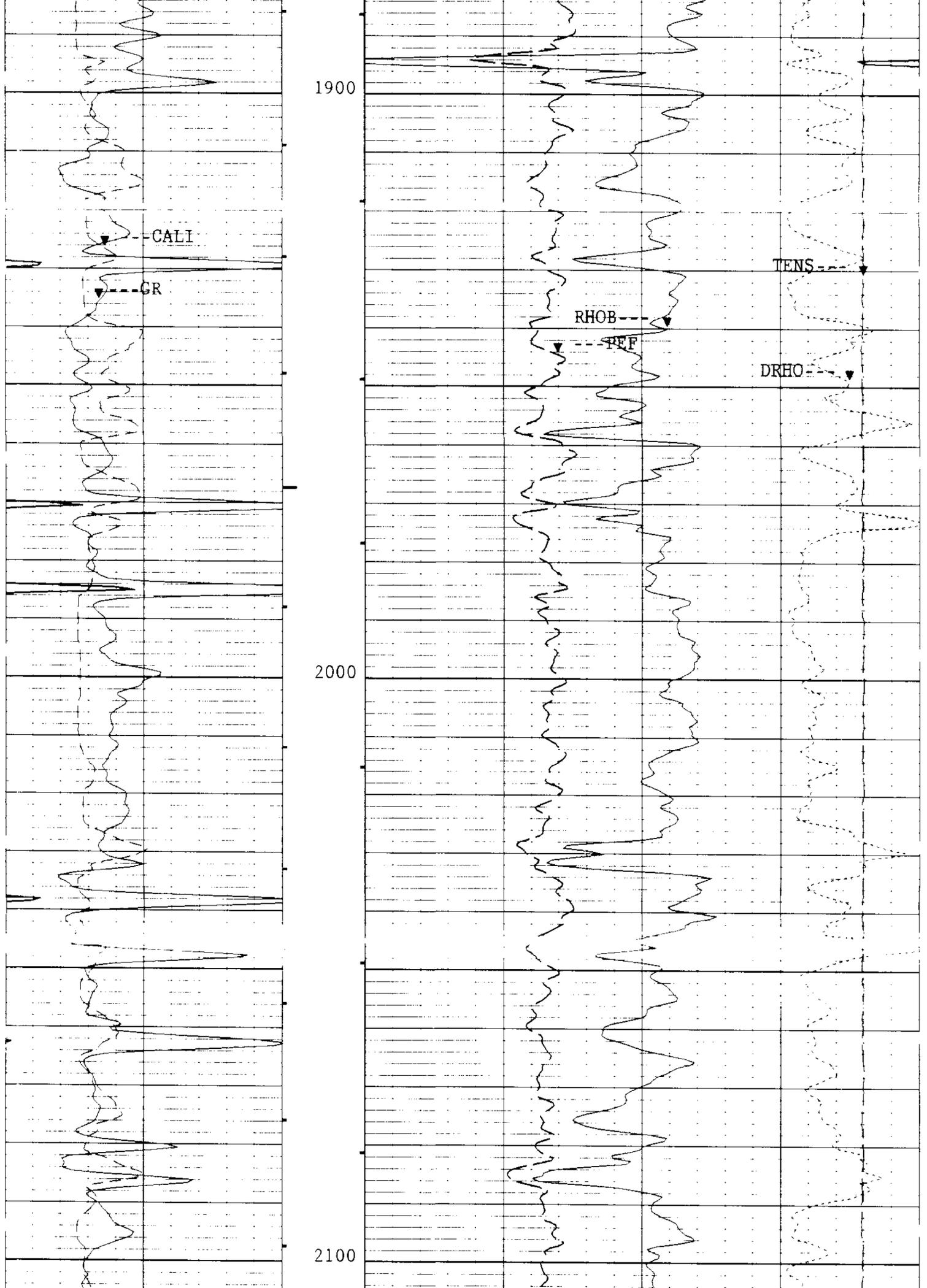


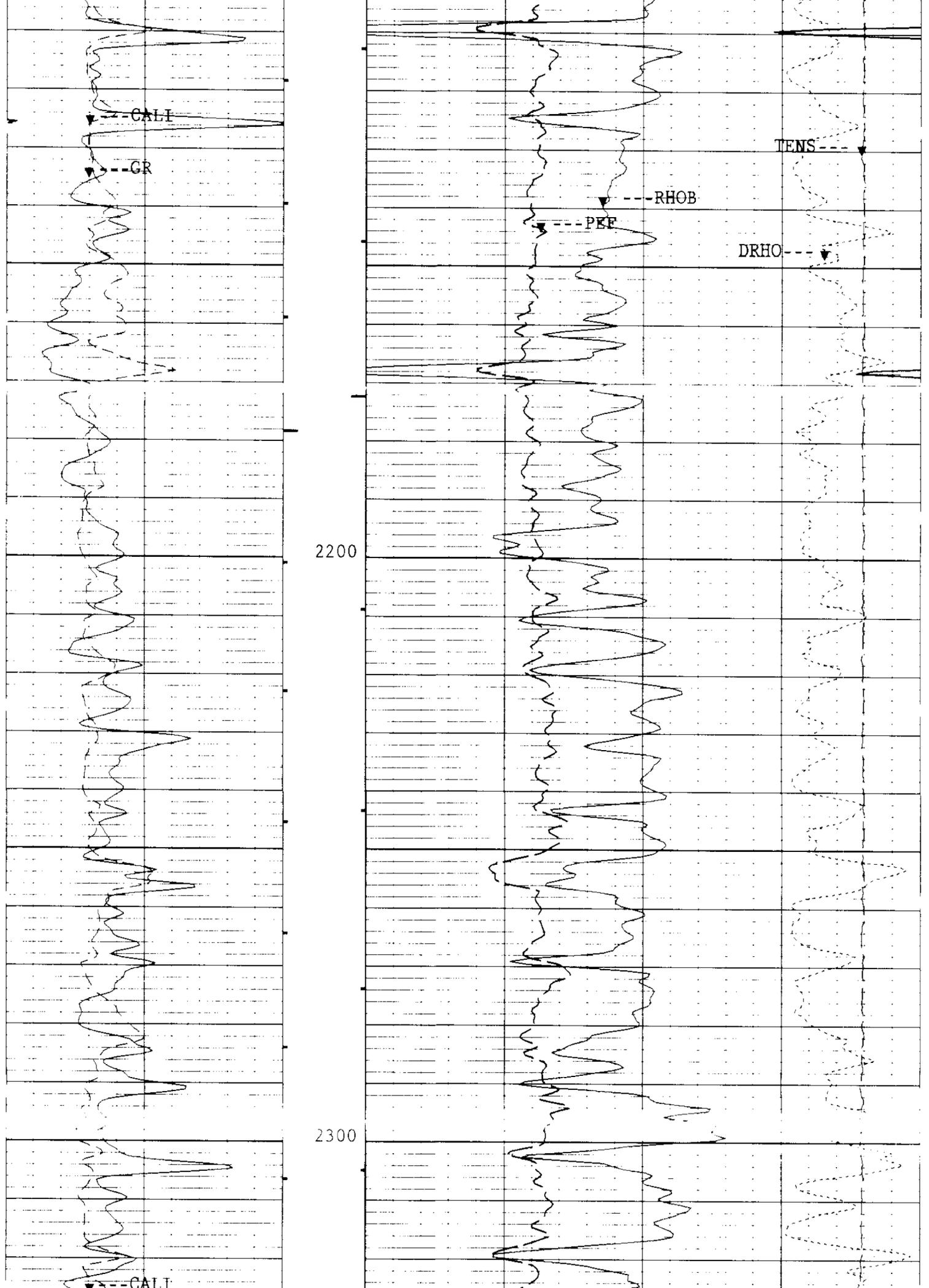


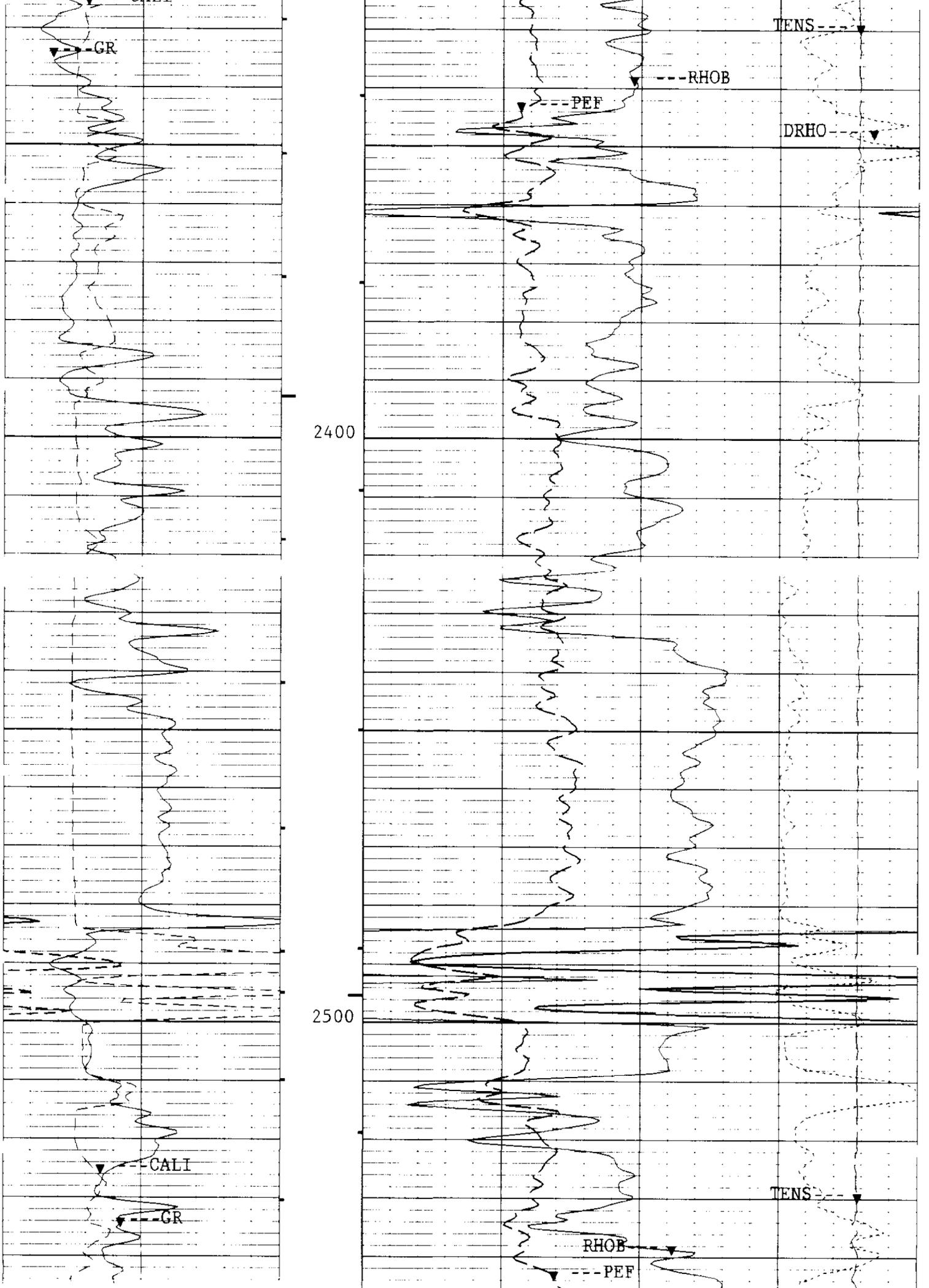


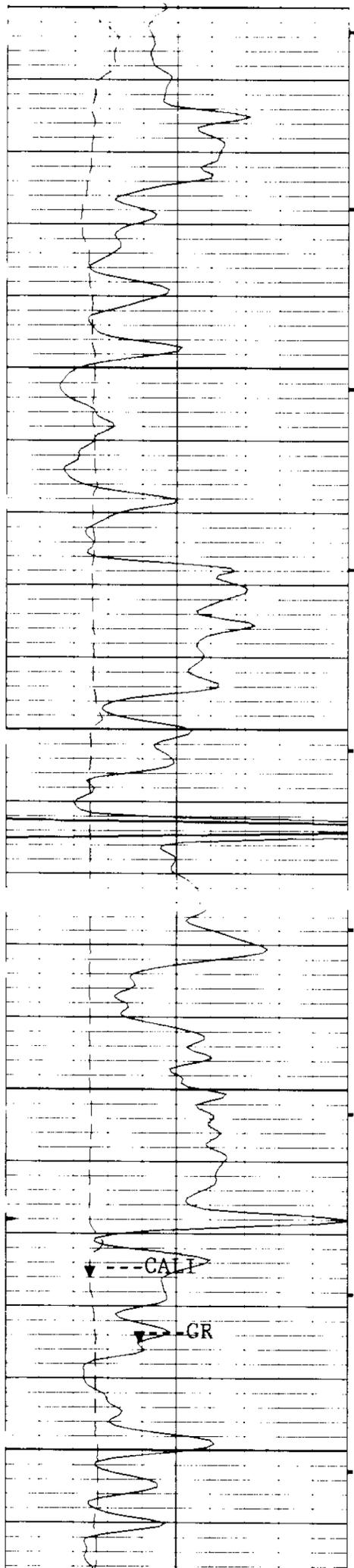








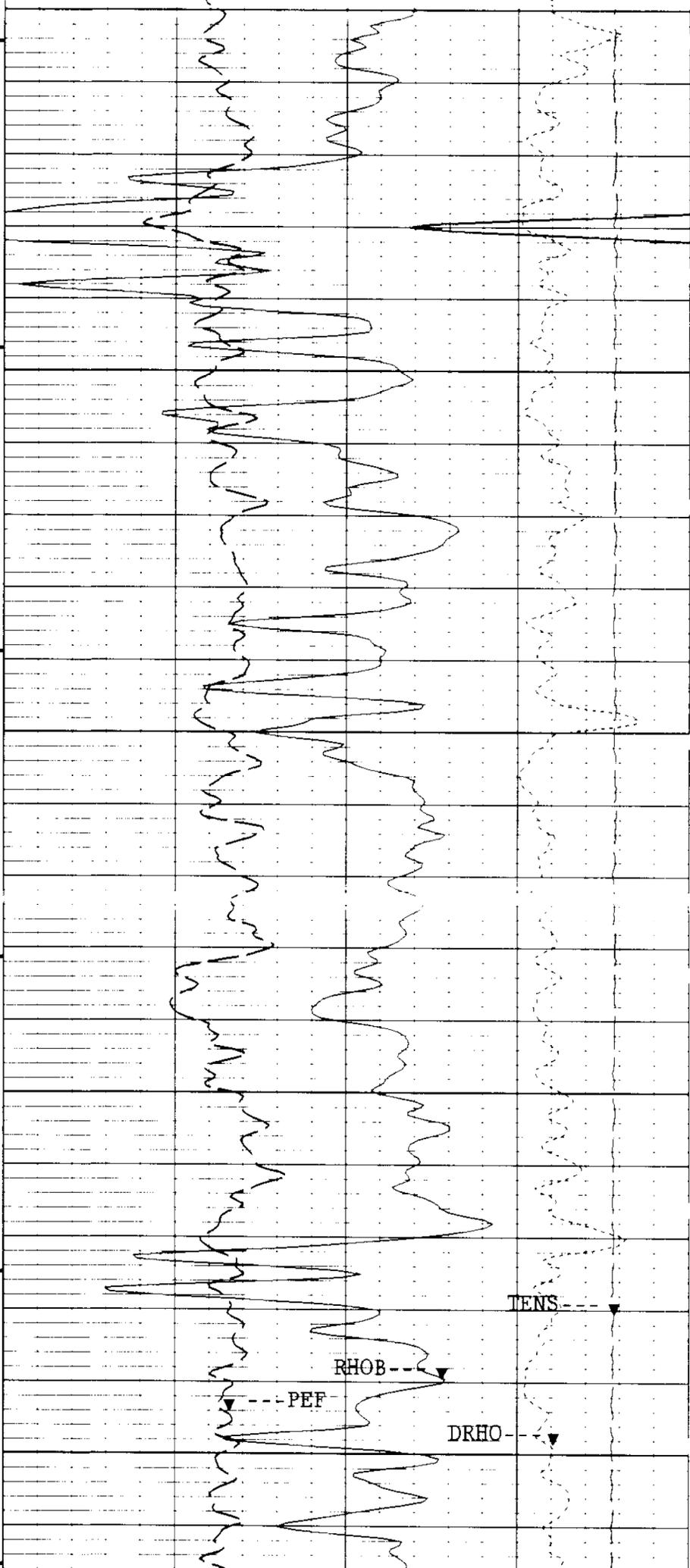




2600

2700

---CALP
---GR



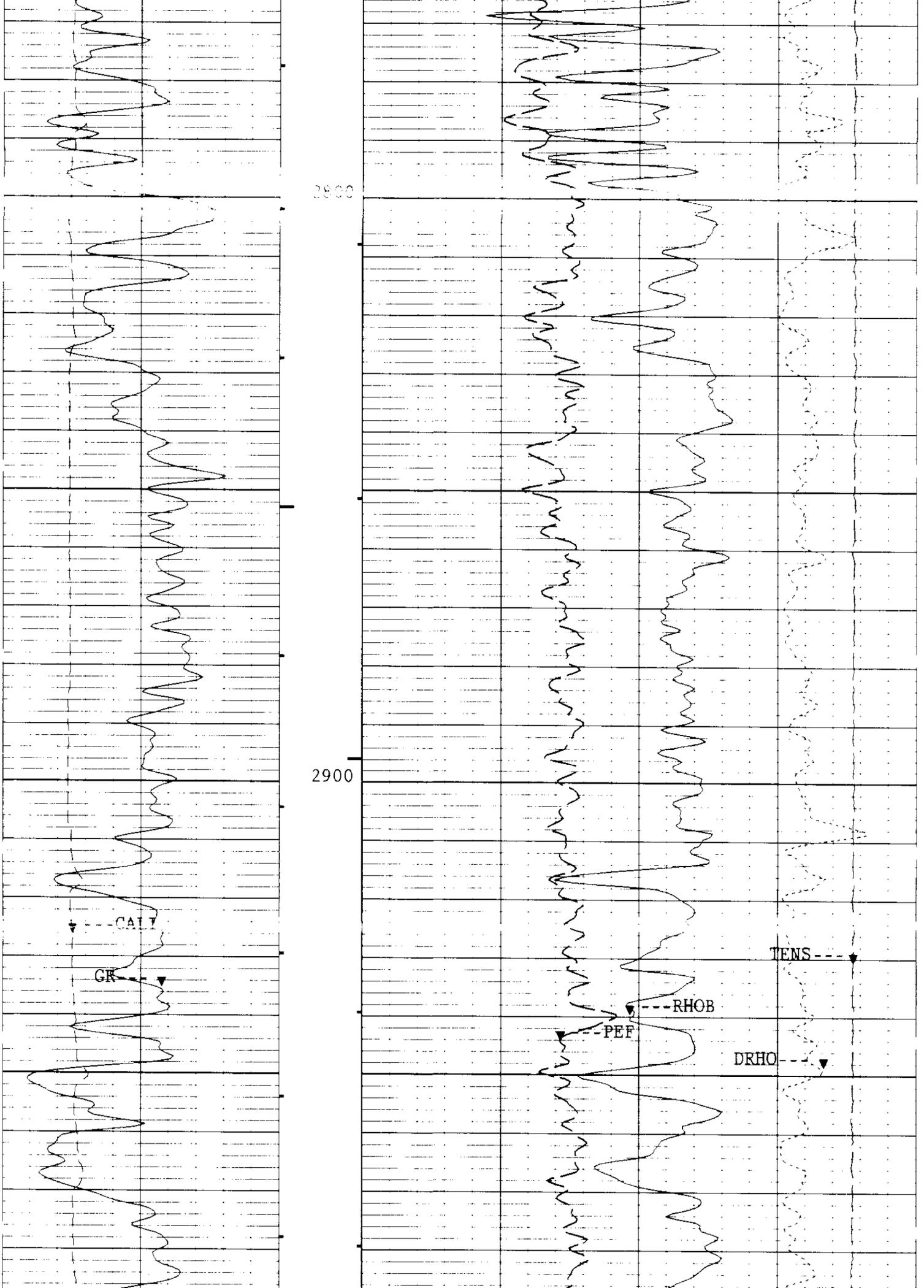
DRHO

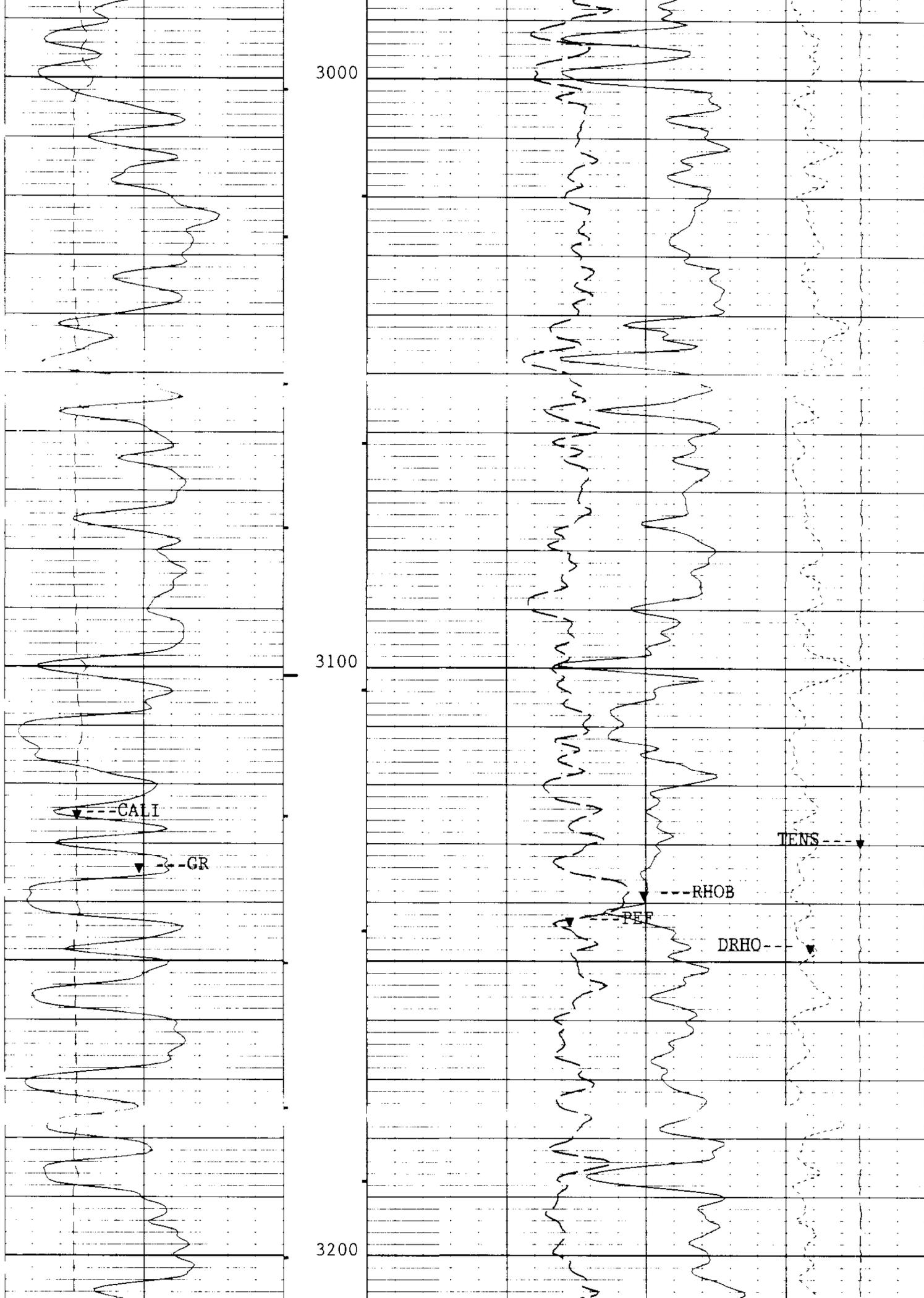
RHOB

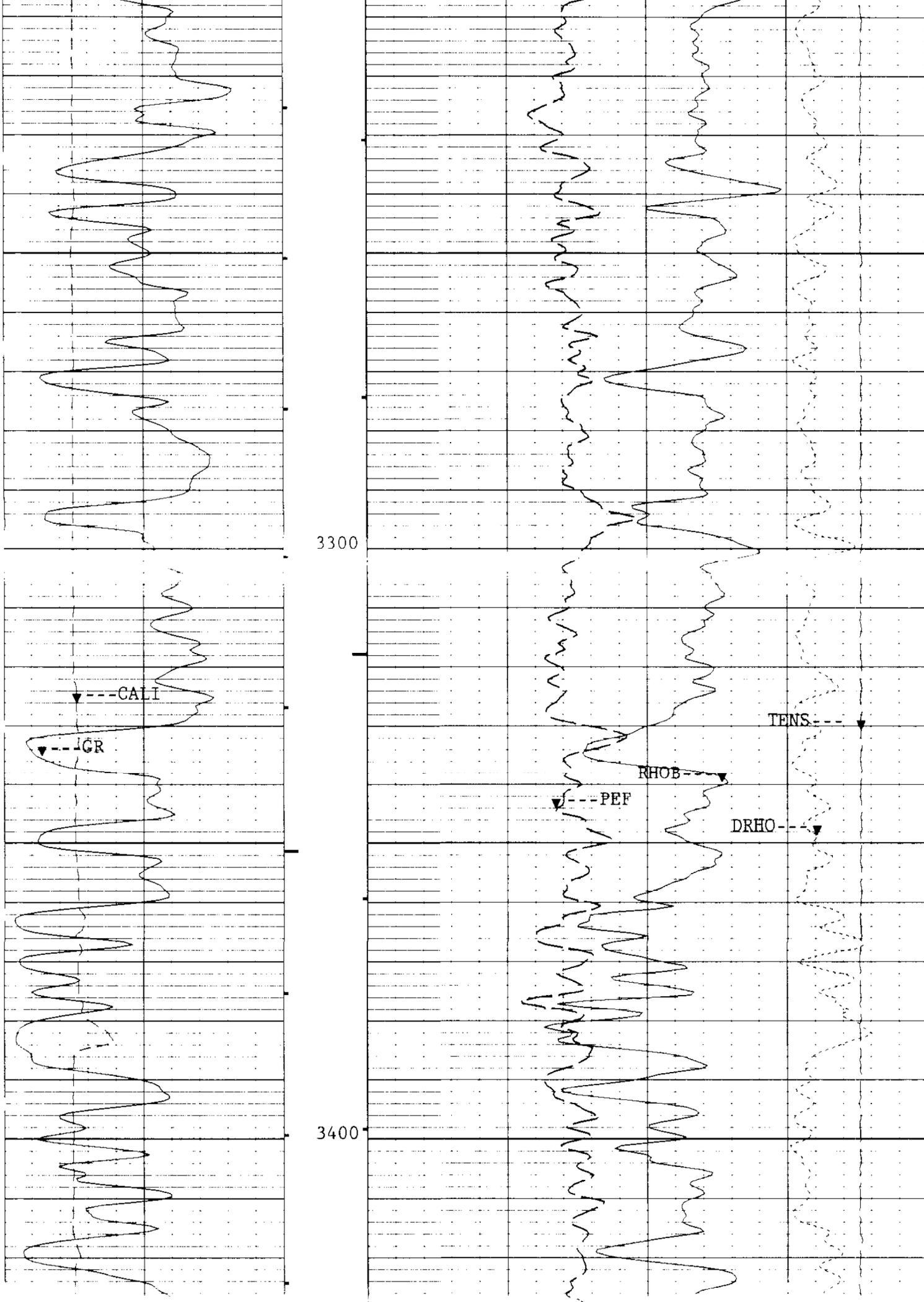
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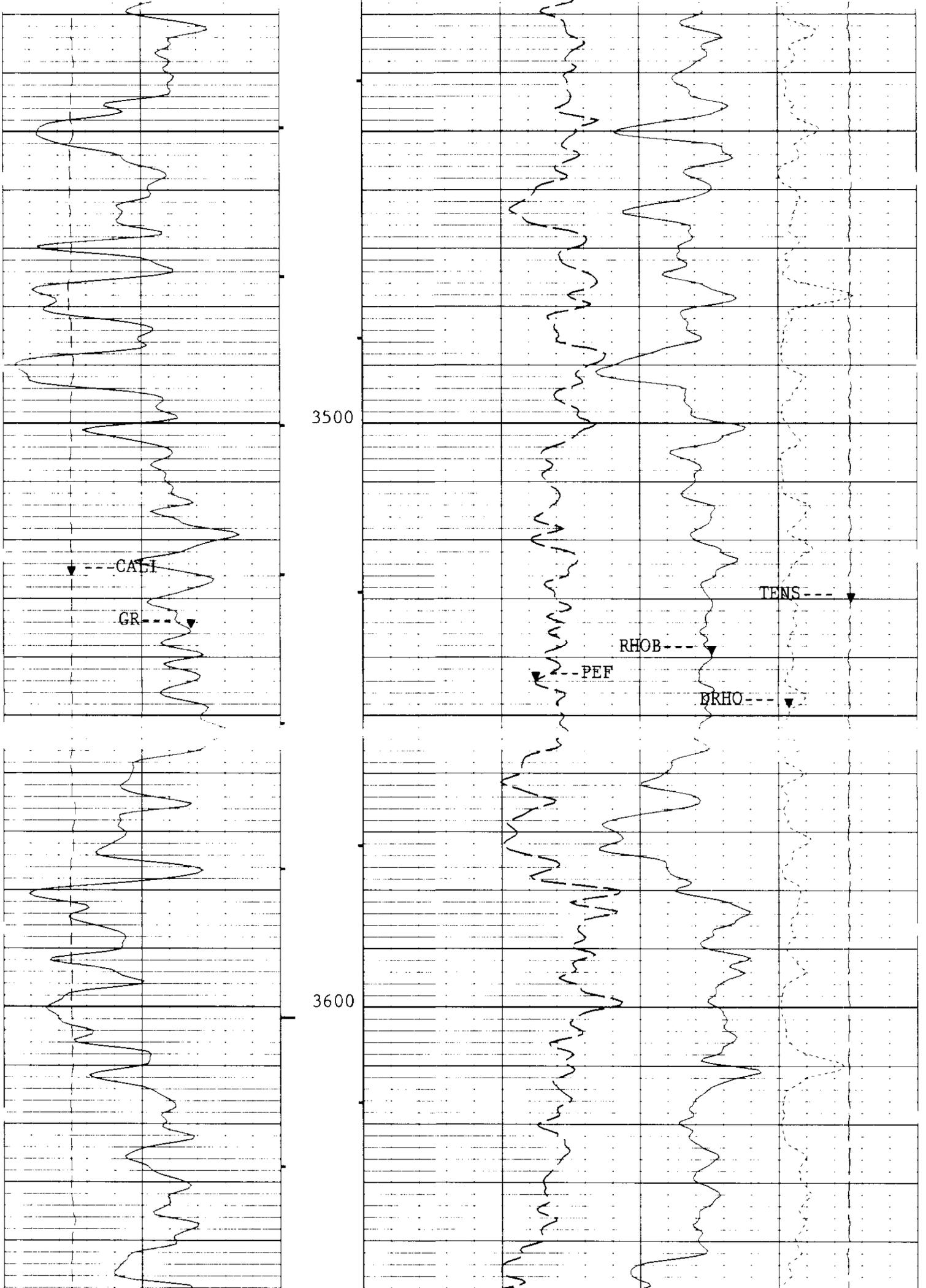
DRHO

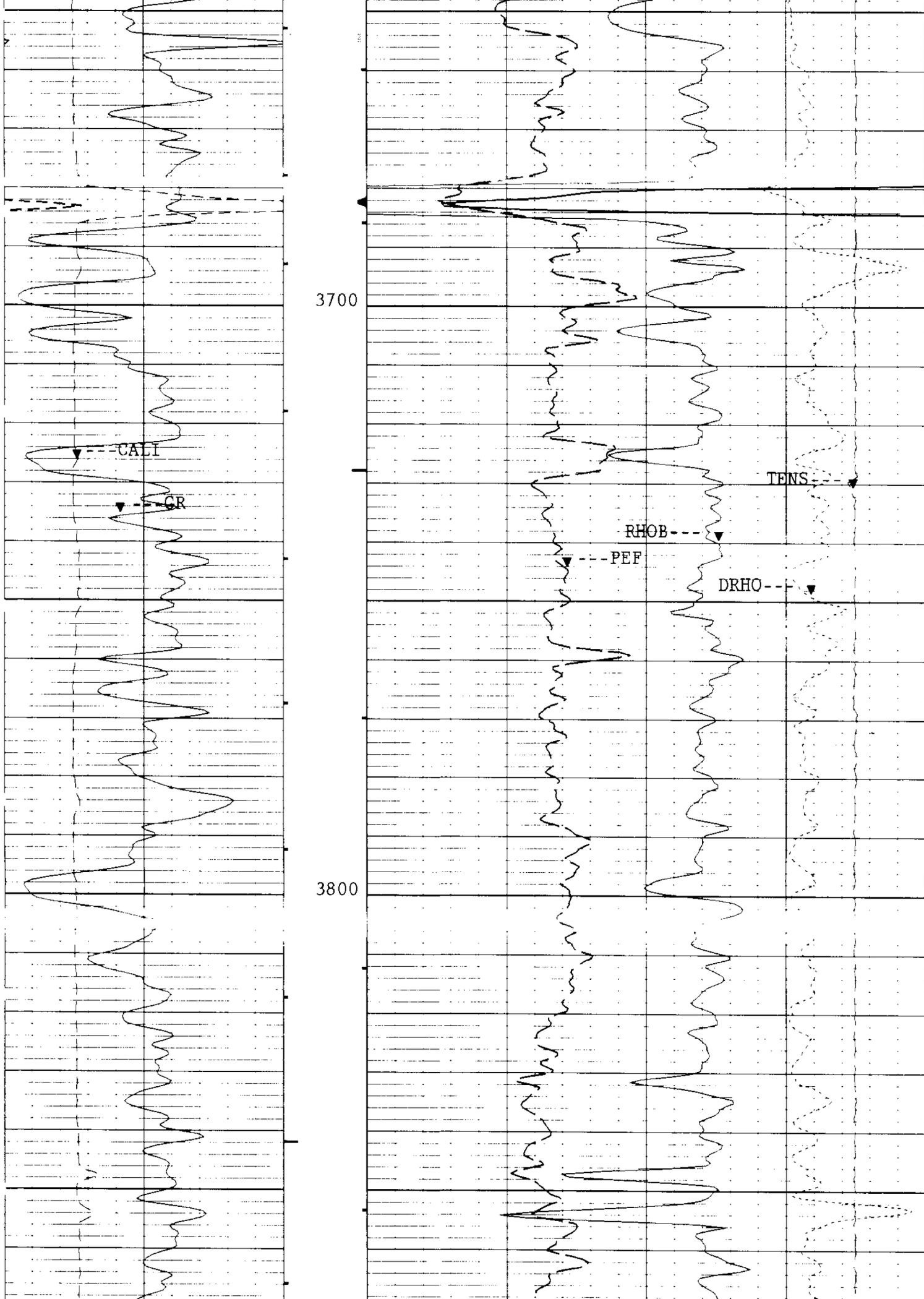
TENS

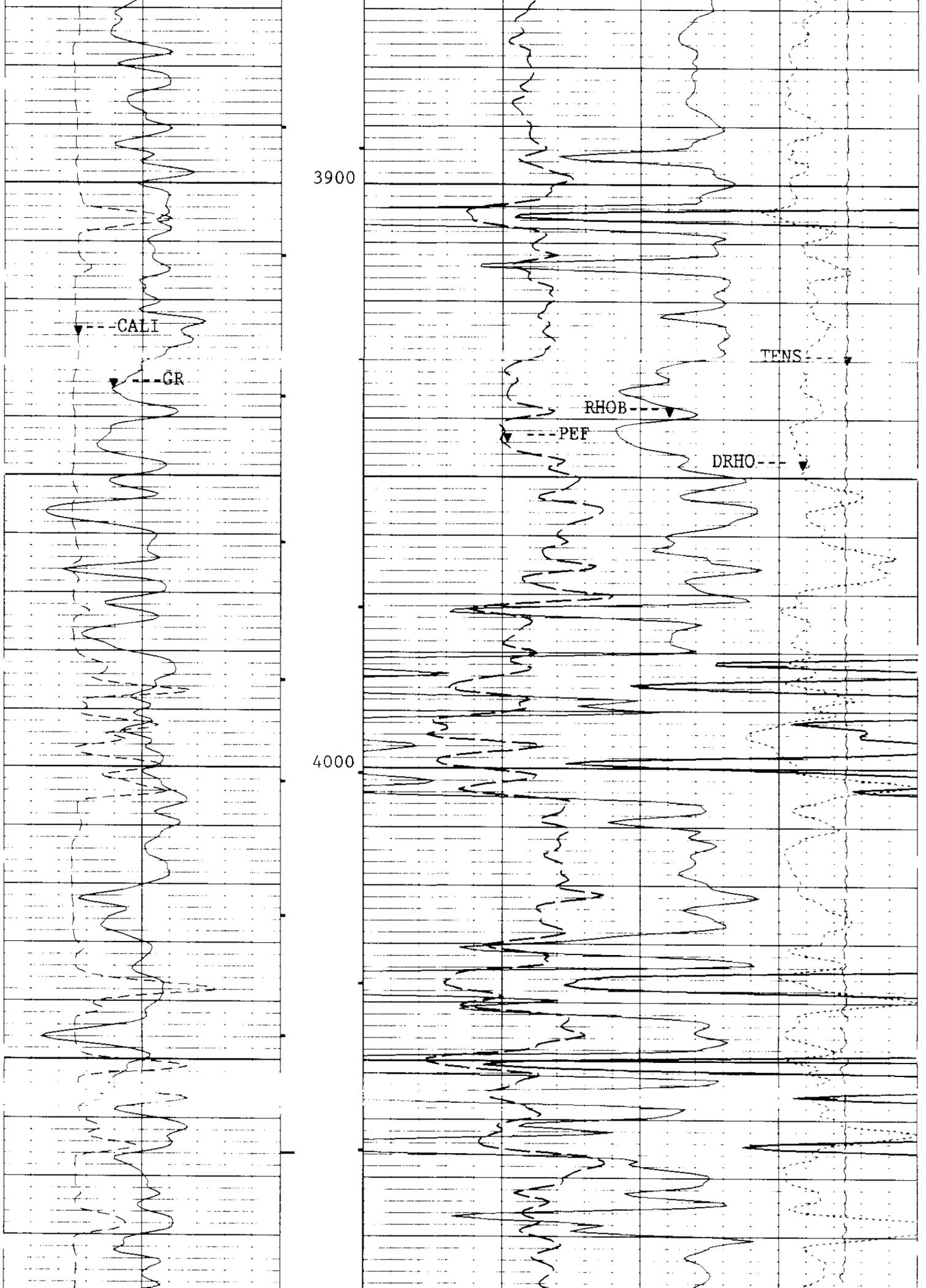


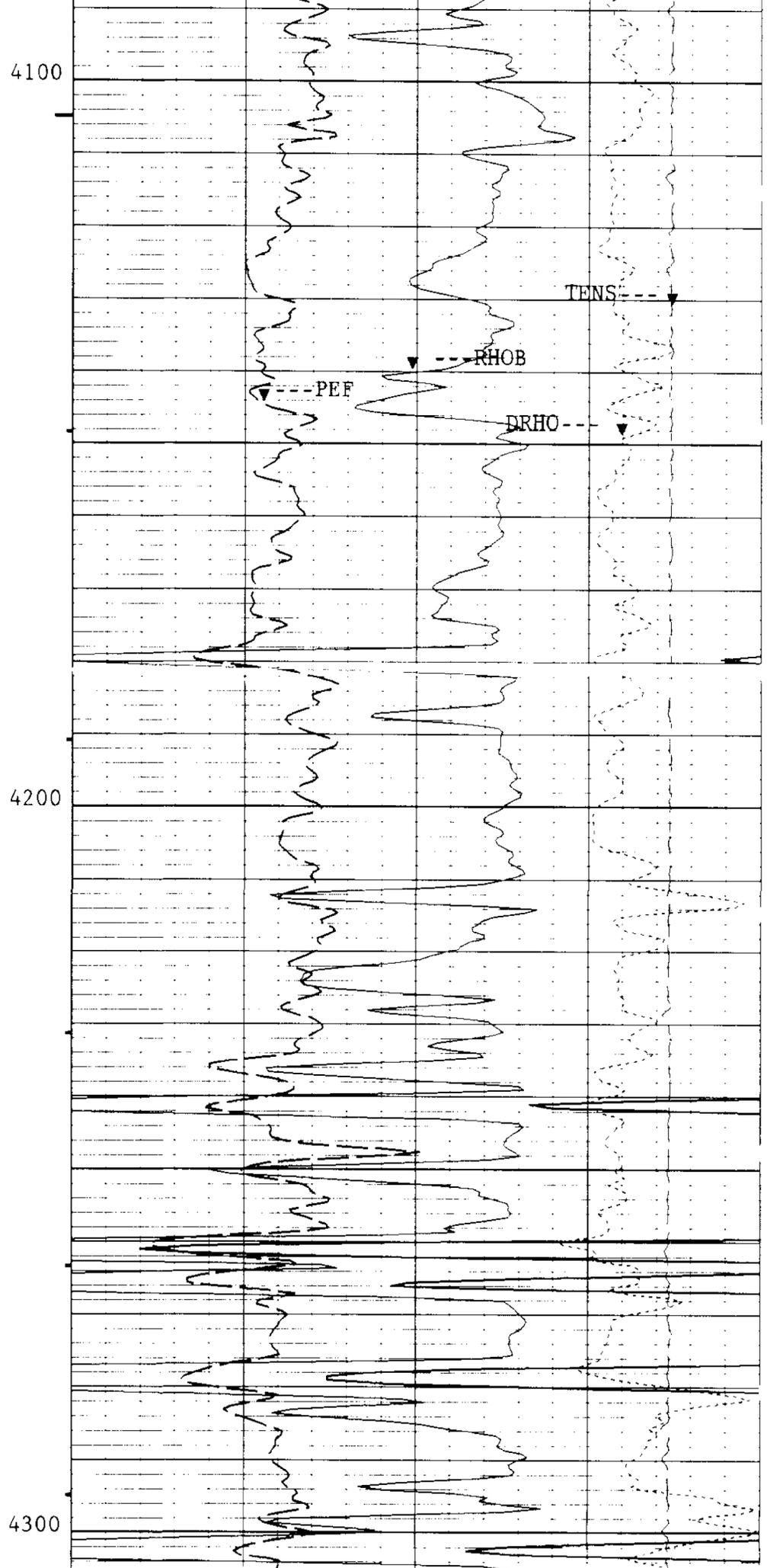
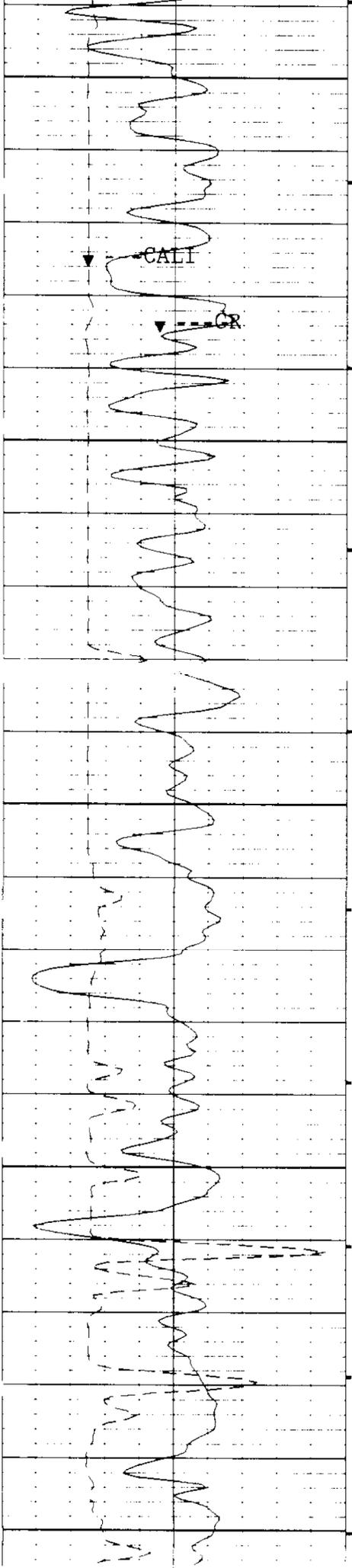


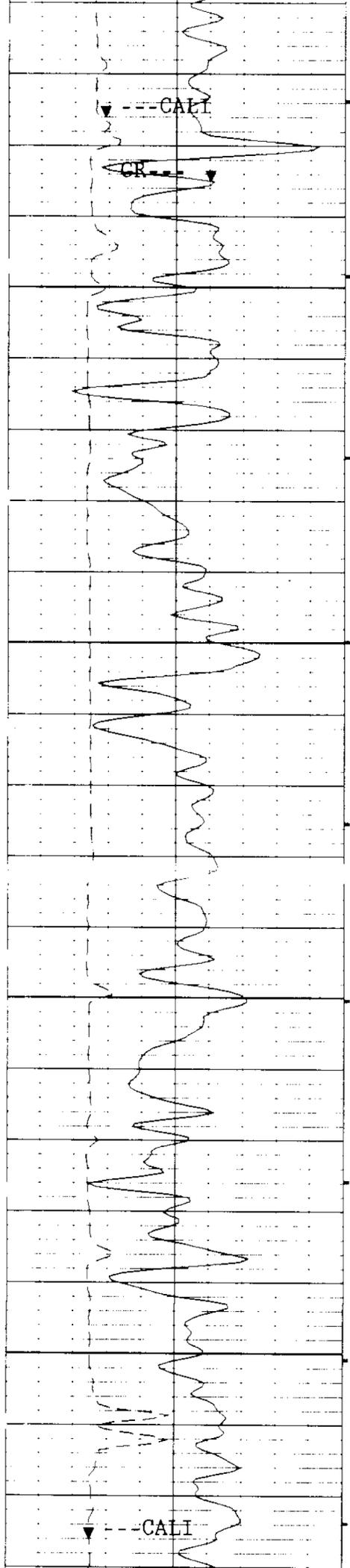






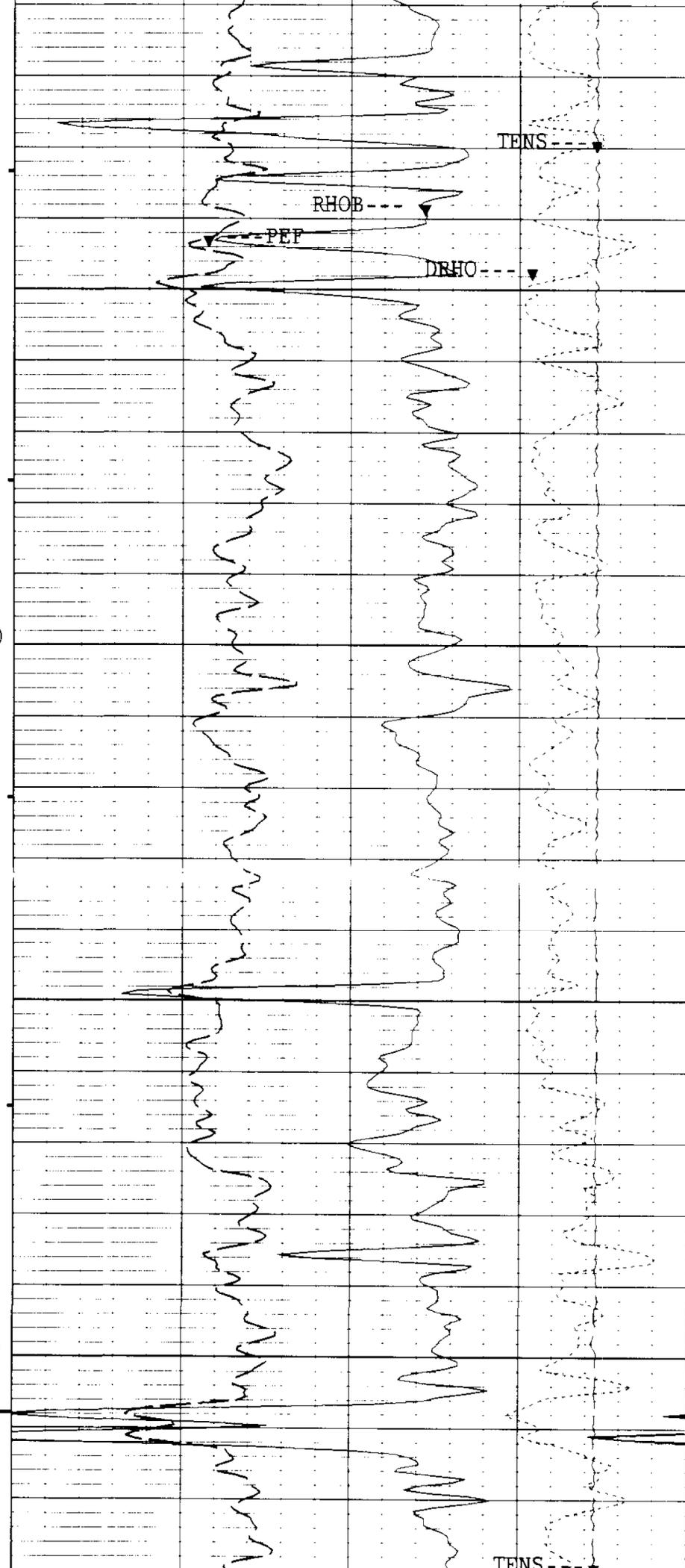


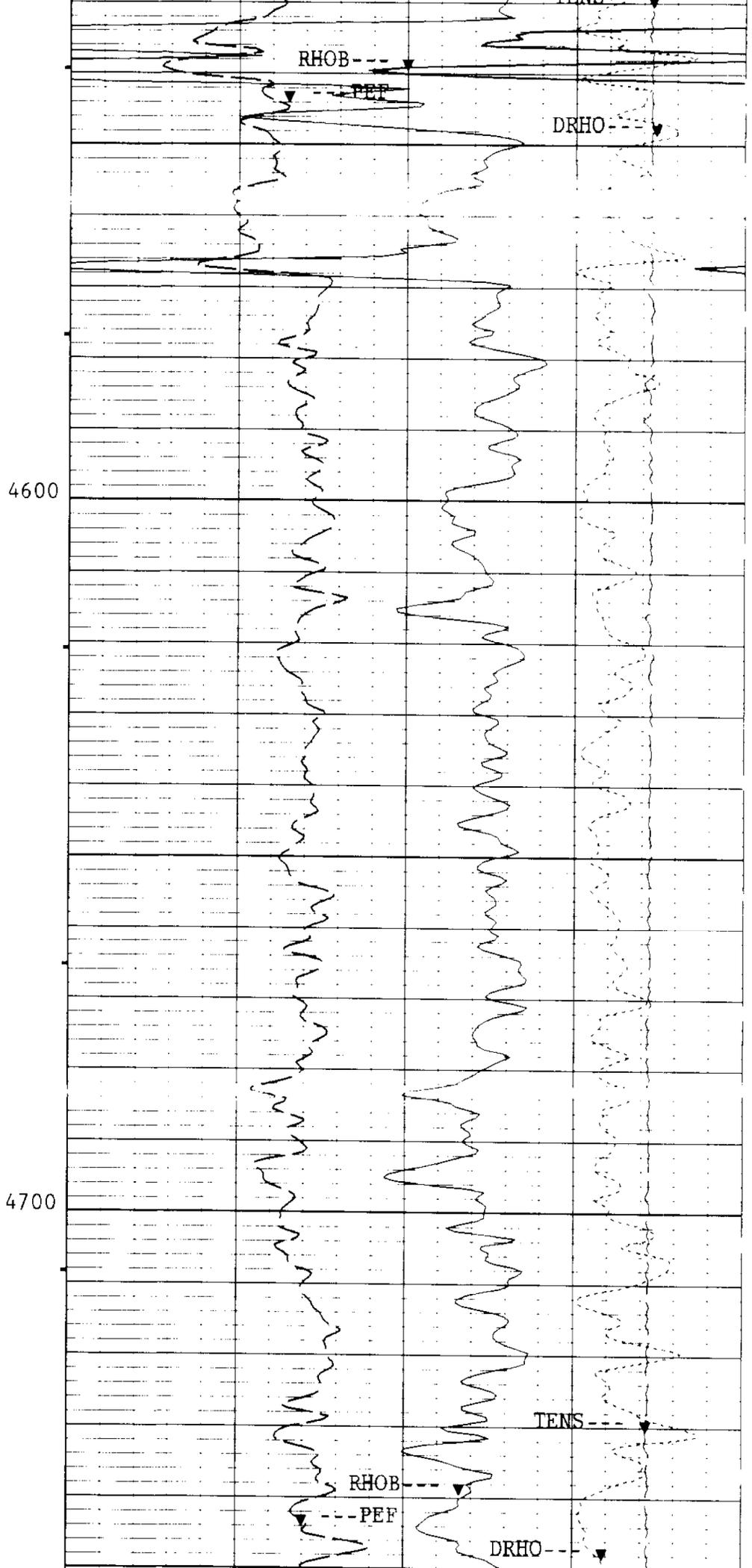
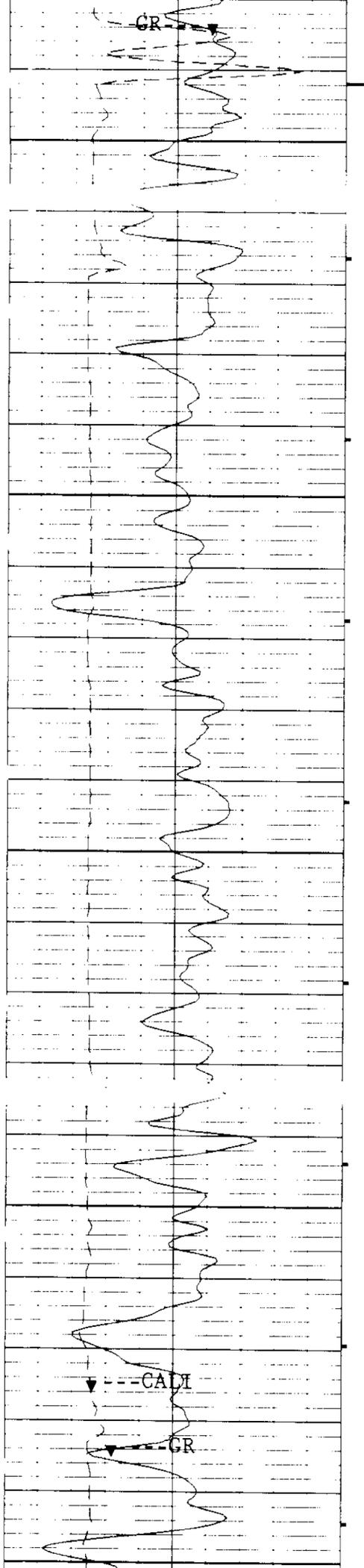




4400

4500





4800

4900

---CAL1

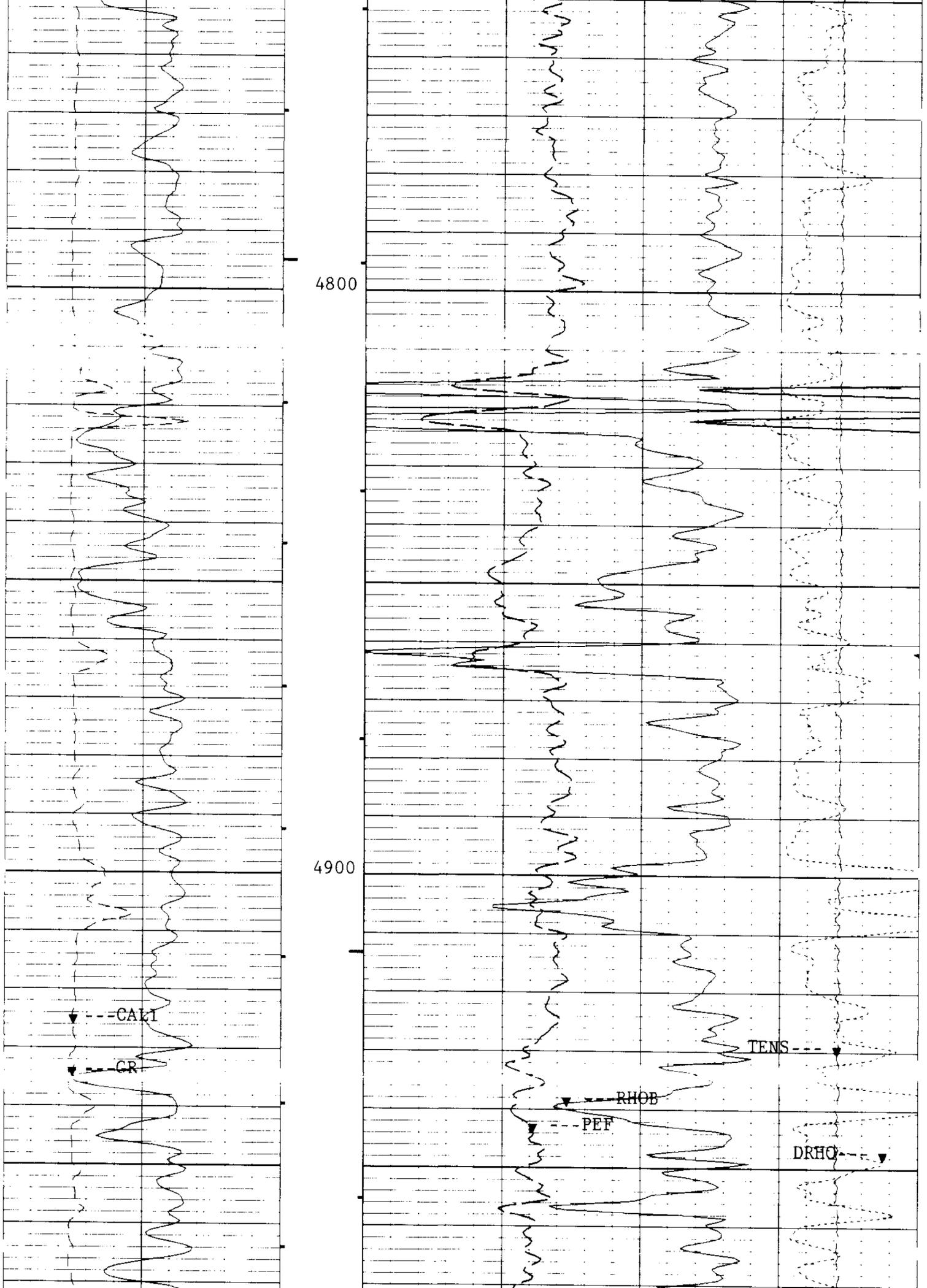
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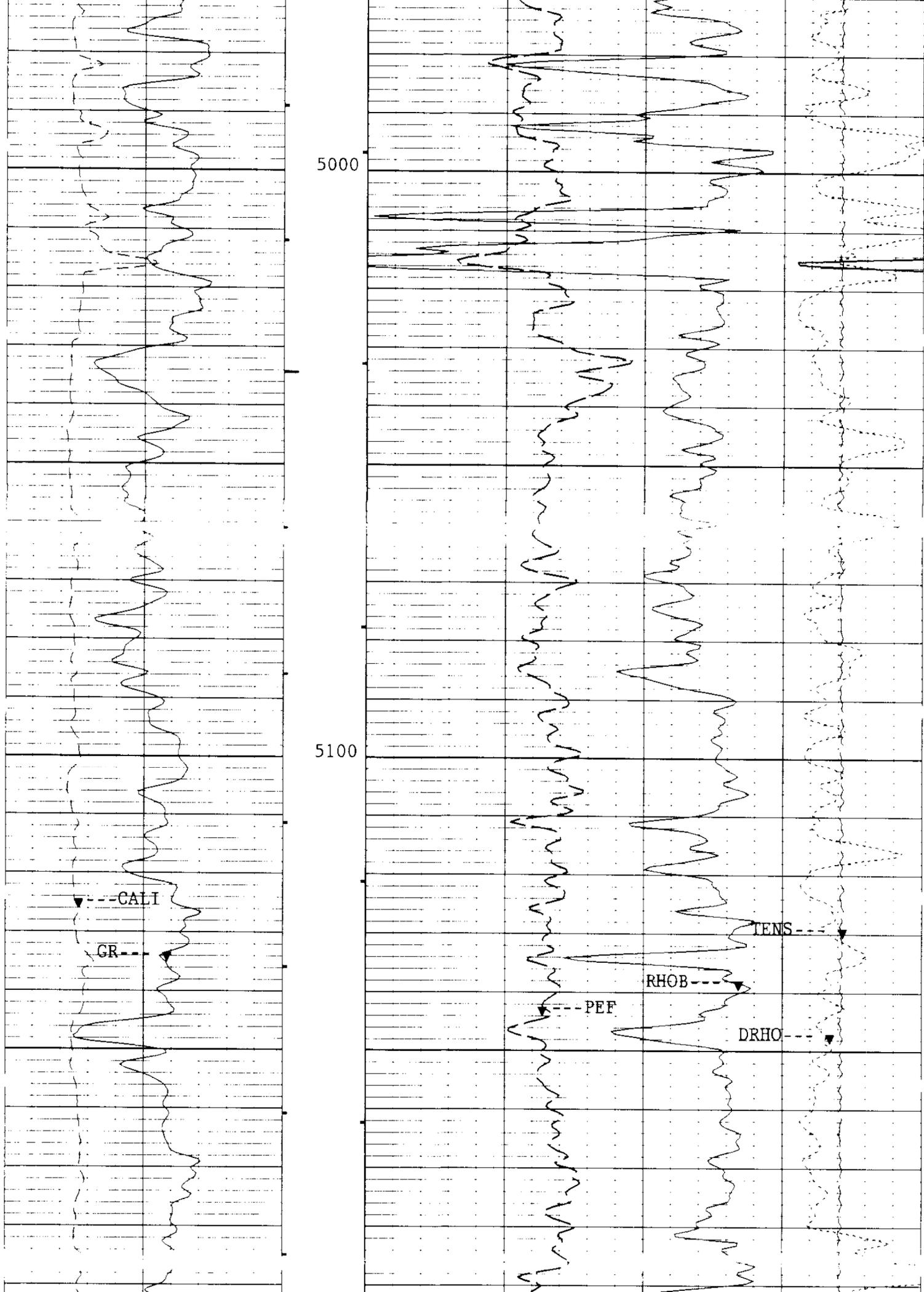
---RHOB

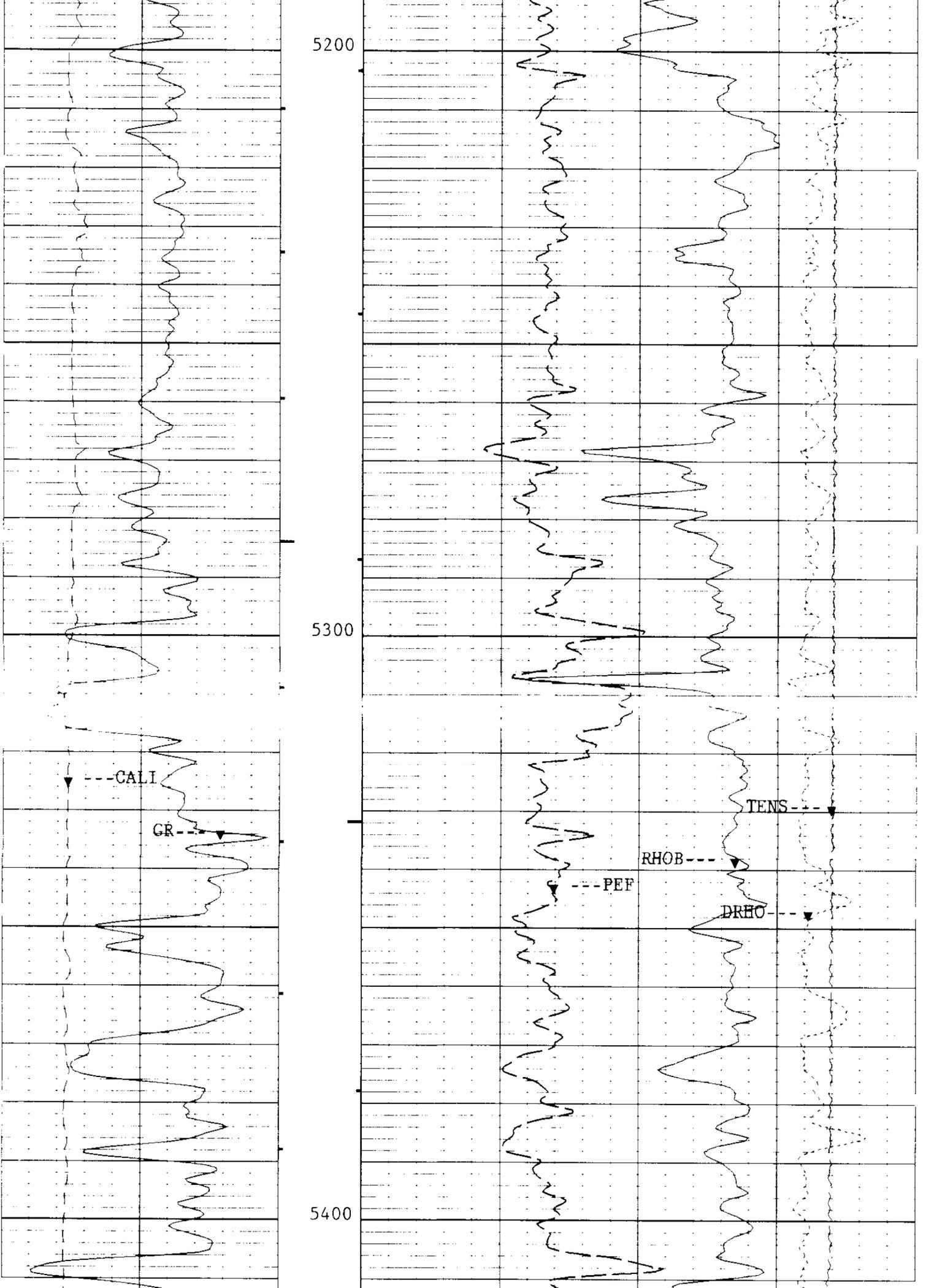
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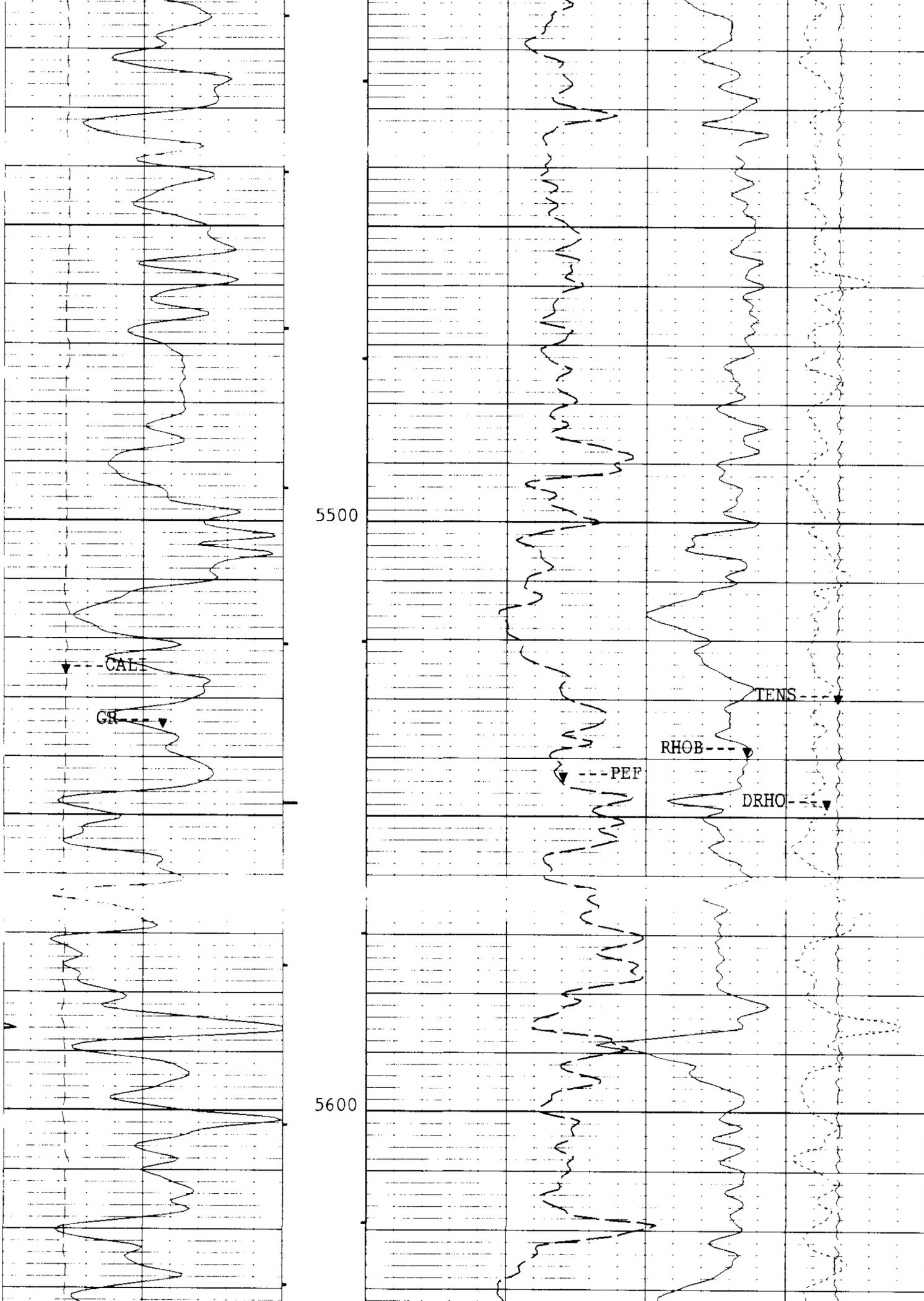
---TENS

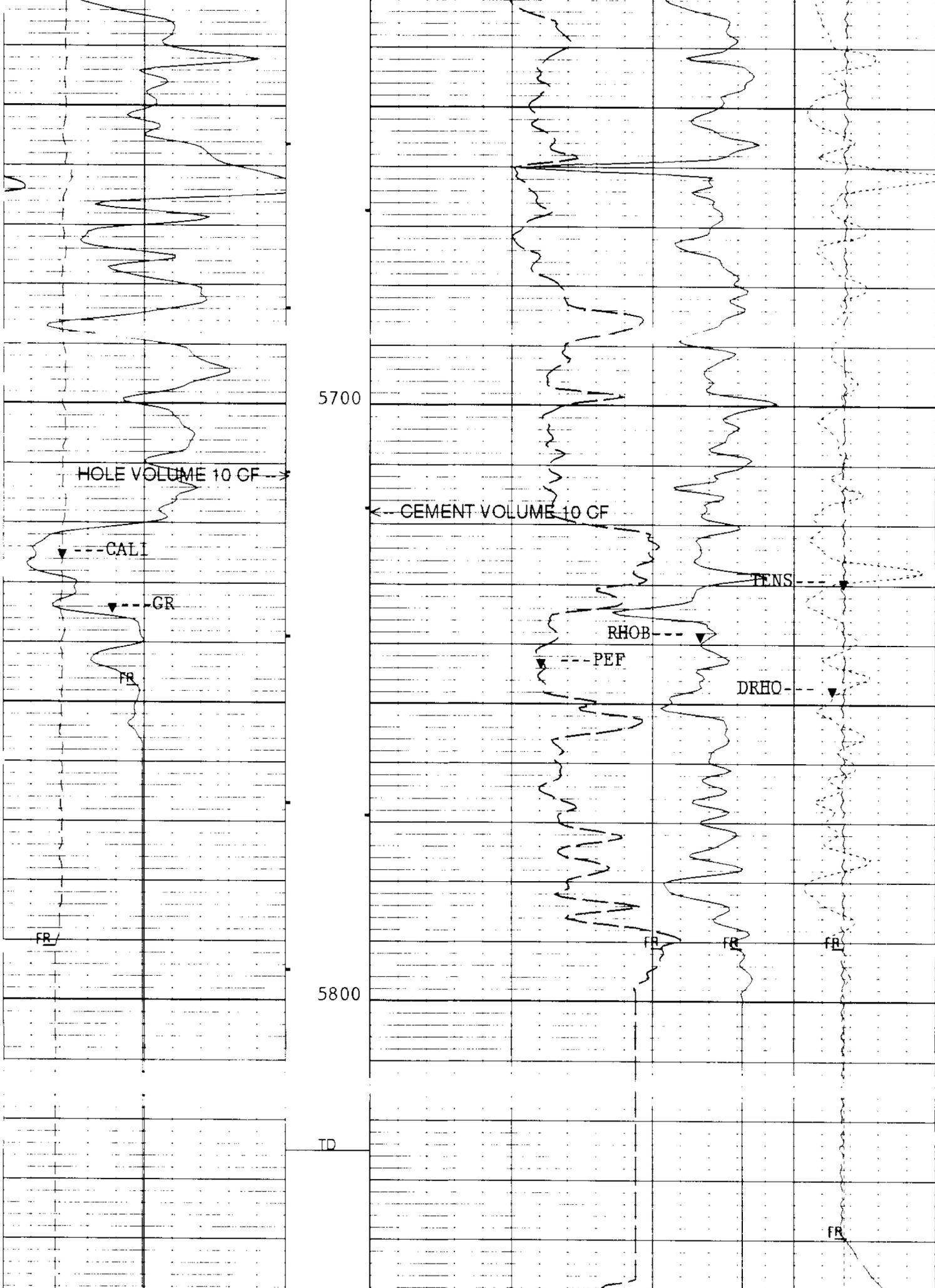
---DRHO











BDQC -- Z2

BDQC

10.000 0.0

TENS(LBF)

10000. 0.0

DRHO(G/C3)

-2500 25000

CALI(IN)

6.0000 16.000

GR(GAPI)

0.0 200.00

RHOB(G/C3)

2.0000 3.0000

PEF

0.0 10.000

SENSOR MEASURE POINT TO TOOL ZERO

GR 77.8 FEET	SP 10.3 FEET
IRM 6.0 FEET	IXM 6.0 FEET
ITEM 6.5 FEET	IXD 9.5 FEET
SFB 6.5 FEET	SPA 10.3 FEET
SFV 6.5 FEET	SFC 6.5 FEET
SA 70.5 FEET	IRD 9.5 FEET
SPCD 70.5 FEET	LA 70.5 FEET
CNTC 51.0 FEET	CFTC 51.5 FEET
LL 33.9 FEET	LITH 33.9 FEET
LU 33.9 FEET	LS 33.9 FEET
SS1 33.4 FEET	PARI 33.4 FEET
CALI 34.0 FEET	SS2 33.4 FEET
MNOR 70.5 FEET	TENS -14.7 FEET
TNRA 52.0 FEET	MINV 70.5 FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PP	NORM		DO	0.0	F
WMUD	8.30000	LB/G	TD	5825.00	F
FCD	5.50000	IN	DHC	BS	
BFM	LIQU		MDEN	2.68000	G/C3
FD	1.00000	G/C3	DPPM	STAN	
MATR	SAND		HC	CALI	
NPDC	0		HSCO	YES	
SOCO	NO		MCCO	NO	
BSCO	NO		FSCO	NO	
MWCO	NO		PTCO	NO	
CCCO	NO		SDAT	SOCN	
MCOR	NATU		SOCN	.500000	IN
FSAL	-50000.0	PPM	ANGL	0.0	DEG
GGRD	.0100000	DF/F	BHFL	WATE	
IFRS	20	KHZ	SBR	1.00000	OHMM
MXE2	102.891	MM/M	DXE2	95.5788	MM/M
MRE2	10.2060	MM/M	DRE2	13.4785	MM/M
MPH2	-.834638	DEG	DPH2	-.043685	DEG
MGF2	1.00661		DGF2	.999629	
DESP	DISA		SFLE	ALLO	
DCAS	4/2.000	F	I1EN	ALLO	
DEVI	0.0	DEG	DSES	INVE	
IPRO	STAN		IPHA	NORM	

CDSE RHOB		CNPS NPFI	
NCJT GSRY		GTSE TEMP	
SHT 80.0000	DEGF	BHT 180.000	DEGF
SPAE ALLO		TDL 5825.00	F
MRT 154.000	DEGF	BSAL 1500.00	PPM
DFD 8.30000	LB/G	RMFS 1.39000	OHMM
MFST 68.0000	DEGF	BS 7.87500	IN
BHS OPEN			

ACCUMULATED INTEGRATION VALUES SUMMARY:

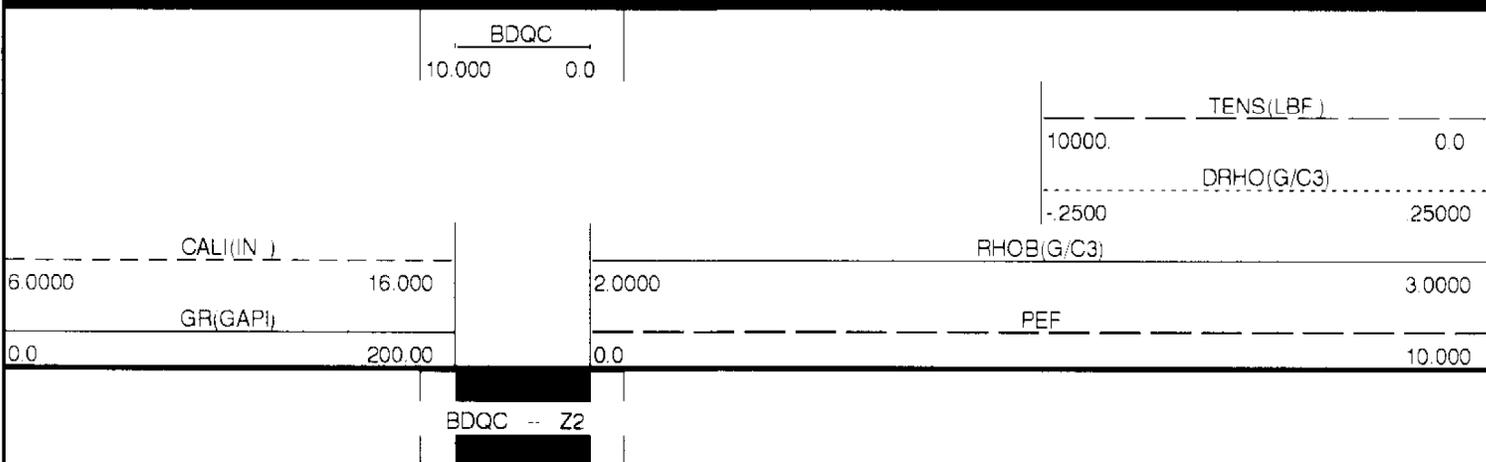
Integrated Hole Volume: 129.772 F3 FROM 5825.00 F TO 5487.50 F
 Integrated Cement Volume: 70.2945 F3 FROM 5825.00 F TO 5487.50 F
 (ASSUMING 5.50000 IN O.D. CASING)

EVENT MARK SUMMARY:

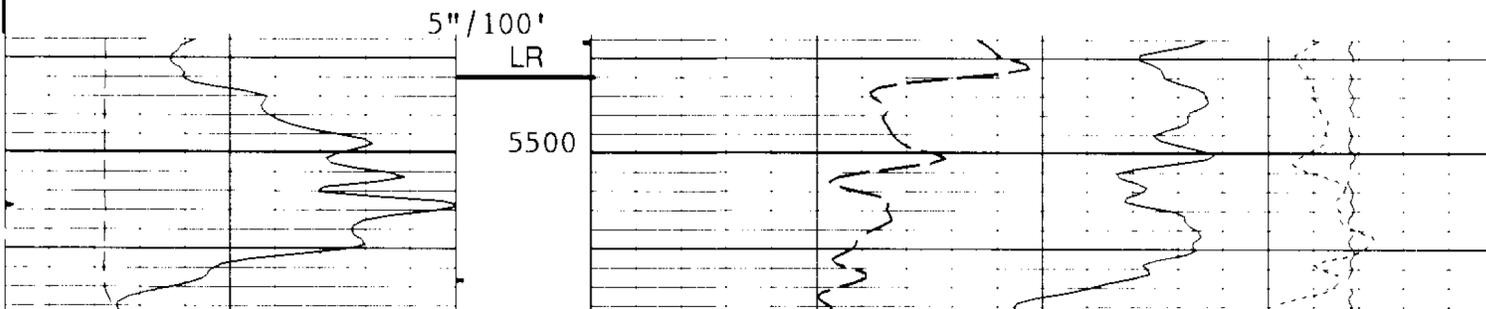
OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
Integrated Hole Volume	10.0000 F3	LEFT EDGE
Integrated Cement Volume	10.0000 F3	RIGHT EDGE

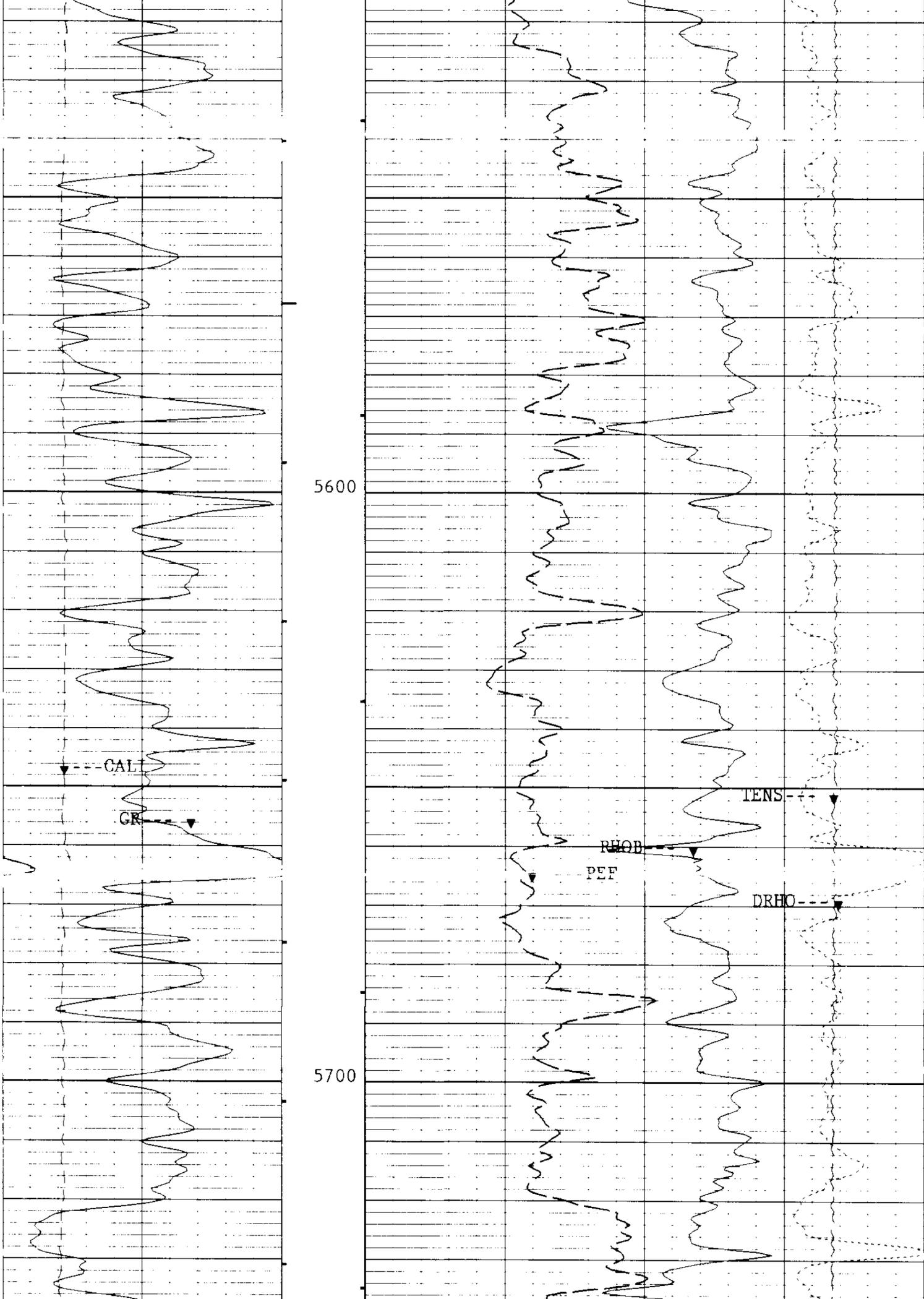
CHANGED PARAMETERS

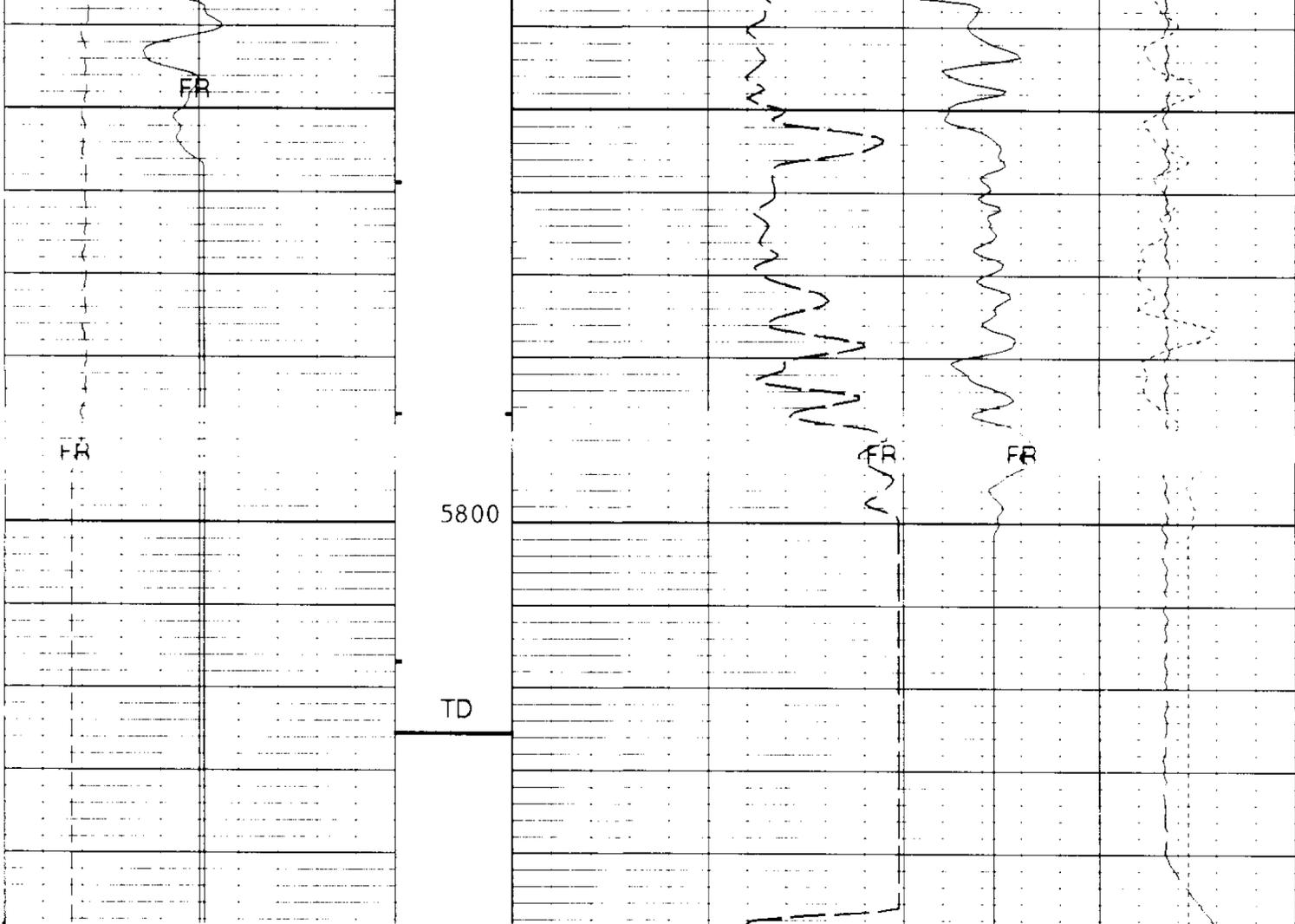
NAME	VALUE	UNIT	DEPTH (F)	NAME	VALUE	UNIT	DEPTH (F)
TD	5825.00	F	5762.5				



CP 40.2 FILE 8 22-OCT-1994 10:25 (UP) REPEAT SECTION







5"/100'

CP 40.2

FILE 8

22-OCT-1994 10:12

(UP)

REPEAT SECTION

BDQC -- Z2

BDQC
10.000 0.0

TENS(LBF)
10000 0.0

DRHO(G/C3)
2500 25000

CAL(IN)
6.0000 16.000

RHOB(G/C3)
2.0000 3.0000

GR(GAPI)
0.0 200.00

PEF
0.0 10.000

SENSOR MEASURE POINT TO TOOL ZERO

DITE 10.3 FEET
DTT -14.7 FEET
CNTH 52.0 FEET

SGTL 77.8 FEET
LDTD 34.0 FEET
PCDB 70.5 FEET

PARAMETERS

NAME VALUE UNIT

NAME VALUE UNIT

EMUD 8 20000 LBF/C

TD 22768.0 F

WMOD 8.50000	LB/G	ID 32768.0	F
FCD 5.50000	IN	DHC BS	
BFM LIQU		MDEN 2.68000	G/C3
FD 1.00000	G/C3	DPPM STAN	
MATR SAND		HC CALI	
NPDC 0		HSCO YES	
SOCO NO		MCCO NO	
BSCO NO		FSCO NO	
MWCO NO		PTCO NO	
CCCO NO		SDAT SOCN	
MCOR NATU		SOCN .500000	IN
FSAL -50000.0	PPM	ANGL 0.0	DEG
GGRD .0100000	DF/F	BHFL WATE	
IFRS 20	KHZ	SBR 1.00000	OHMM
MXE2 102.891	MM/M	DXE2 95.5788	MM/M
MRE2 10.2060	MM/M	DRE2 13.4785	MM/M
MPH2 -.834638	DEG	DPH2 -.043685	DEG
MGF2 1.00661		DGF2 .999629	
DESP DISA		SFLE ALLO	
DCAS 472.000	F	ITEN ALLO	
DEVI 0.0	DEG	DSES INVE	
IPRO STAN		IPHA NORM	
CDSE RHOB		CNPS NPHI	
NCJT GSRY		GTSE TEMP	
SHT 80.0000	DEGF	BHT 180.000	DEGF
SPAЕ ALLO		BSAL 1500.00	PPM
DFD 8.30000	LB/G	RMFS -50000.0	OHMM
MFSI -50000.0	DEGF	BS 7.87500	IN
BHS OPEN			

AFTER SURVEY TOOL CHECK SUMMARY

PERFORMED: 22-OCT-1994 13:53
PROGRAM FILE: TOH (VERSION 40.2 93/10/15 93/10/15)

LDTD TOOL CHECK

DENSITY RESISTIVITY SONDE NUMBER : 4738
NUCLEAR SERVICE CARTRIDGE NUMBER : 2919
POWERED DETECTOR HOUSING NUMBER : 3738
POWERED GAMMA-GAMMA DETECTOR NUMBER : 3732
LDT LOGGING SOURCE NUMBER : 1786
LDT CALIBRATION MODE : WATE

	MEASURED BACKGROUND		UNITS	TOLERANCE ON
	BEFORE	AFTER		BEFORE-AFTER
LL	15.5	15.5	CPS	+/- 1.0
LU	59.1	59.4	CPS	+/- 1.0
LS	45.1	45.2	CPS	+/- 1.0
LITH	4.5	4.5	CPS	+/- 0.3
SS1	13.4	13.5	CPS	+/- 0.5
SS2	8.9	8.9	CPS	+/- 0.5

HV SETTINGS		DETECTOR RESOLUTIONS	
HV LS:	1197.2 V	LS:	8.5 %
HV SS:	1176.5 V	SS:	8.4 %

BKGD BKGD
BEFORE SURVEY: 22-OCT-1994 09:07 AFTER SURVEY: 22-OCT-1994 13:48

CNTH

TOOL CHECK

INPUT	BEFORE JIG	AFTER JIG
CNTC	2852.90	2827.87
CFTC	1209.44	1200.46

CHANGE IN THERMAL POROSITY AT 20 PU IS -.046 PU

BEFORE SURVEY: BACK: 22-OCT-1994 09:07 JIG: 22-OCT-1994 09:14
 AFTER SURVEY CHECK: BACK: 22-OCT-1994 13:48 JIG: 22-OCT-1994 13:52

DITE TOOL CHECK

SONDE SERIAL NUMBER: 468

CARTRIDGE SERIAL NUMBER: 465

FILE:		DEPTH INTERVAL:			
8		5848.5 -	5487.5	F	
9		5848.5 -	3636.0	F	
10		3755.0 -	90.5	F	

MEAN CALIBRATION CHANGE

	ABSOLUTE CHANGE FOR RESISTIVITY > 27 OHM-M		PERCENT CHANGE FOR RESISTIVITY < 27 OHM-M		SFL ABS. CHANGE FOR RESISTIVITY < 1 OHM-M	
	CHANGE (MM/M)	TOLERANCE (MM/M)	CHANGE (%)	TOLERANCE (%)	CHANGE (OHMM)	TOLERANCE (OHMM)
DEEP	.04	< 0.75	.08	< 2.0		N/A
MEDIUM	.05	< 0.75	.09	< 2.0		N/A
SFL	.00	< 0.75	.02	< 2.0	.001	< 0.02

NOTE: Log quality flags in depth track indicate when electronic calibration is out of tolerance. Flagged values ARE now included in this table.

PCDB TOOL CHECK

	ZERO		PLUS		UNITS
	BEFORE	AFTER	BEFORE	AFTER	
MINV	0.0	.0	5.0	5.0	OHMM
MNOR	0.0	0.0	5.0	5.0	OHMM

BEFORE SURVEY: ZERO: 22-OCT-1994 09:16 PLUS: 22-OCT-1994 09:18
 AFTER SURVEY CHECK: ZERO: 22-OCT-1994 13:36 PLUS: 22-OCT-1994 13:37

CP 40.2 FILE 12 22-OCT-1994 13:52

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 22-OCT-1994 10:04
 PROGRAM FILE: TOH (VERSION 40.2 93/10/15 93/10/15)

SGTL DETECTOR CALIBRATION SUMMARY

	MEASURED		CALIBRATED	UNITS
GR	BKGD	JIG		GAPI
	36	198	165	

BACK: 22-OCT-1994 09:07 JIG: 22-OCT-1994 09:14 COMP: 22-OCT-1994 09:14

LDTD DETECTOR CALIBRATION SUMMARY

DENSITY RESISTIVITY SONDE NUMBER : 4738
 NUCLEAR SERVICE CARTRIDGE NUMBER : 2919
 POWERED DETECTOR HOUSING NUMBER : 3738
 POWERED GAMMA-GAMMA DETECTOR NUMBER : 3732
 LDT LOGGING SOURCE NUMBER : 1786
 LDT CALIBRATION MODE : WATE

	MEASURED	SHOP VALUES		UNITS
	BKGD	AL+FE	AL	
LL	15.5	92.4	101.7	CPS
LU	59.1	139.6	155.5	CPS
LS	45.1	162.1	179.4	CPS
LITH	4.5	41.2	62.4	CPS
SS1	13.4	184.7	205.6	CPS
SS2	8.9	255.1	280.0	CPS

HV SETTINGS		DETECTOR RESOLUTIONS	
HV LS:	1206.3 V	LS:	8.6 %
HV SS:	1180.8 V	SS:	8.4 %

BKGD: 22-OCT-1994 09:07

CNTH DETECTOR CALIBRATION SUMMARY

NEUTRON COMPENSATED CARTRIDGE NUMBER: 290
 NEUTRON SOURCE SERIAL NUMBER : 2549
 THERMAL HOUSING NUMBER : 4373
 THERMAL CALIBRATED NEUTRON BOX : 3221

INPUT	PLUS REFERENCE COUNTS	SHOP TANK COUNTS	SHOP JIG COUNTS	BEFORE JIG COUNTS	GAIN
CNIC	2793.00	2702.65	1228.84	1209.44	1.033
CFTC	2793.00	2702.65	1228.84	1209.44	1.033
RATIO	2.159	2.372	2.339	2.359	

BACK: 22-OCT-1994 09:07 JIG: 22-OCT-1994 09:14 COMP: 22-OCT-1994 08:23

DITE ELECTRONICS CALIBRATION SUMMARY

SONDE SERIAL NUMBER: 468
 CARTRIDGE SERIAL NUMBER: 465
 INDUCTION FREQUENCY: 20 KHZ

INDUCTION ELECTRONICS:

	OFFSET (MM/M)	VALID RANGE (MM/M)	GAIN (--)	VALID RANGE (---)	PHASE (DEG.)	VALID RANGE (DEG.)
IRD	8.6	-117. => 133.	.917	.78 => 1.09		
IXD	12.4	-113. => 137.	.931	.79 => 1.11	7.39	-8.65 => 21.35
IRM	32.9	-193. => 257.	.948	.80 => 1.13		

IXM 32.4 -193. => 257. .953 .80 => 1.14 8.50 -7.53 => 22.47

SFL ELECTRONICS:

	OFFSET	VALID RANGE	UNITS	GAIN	VALID RANGE
SFV	.4	-14.6 => 15.4	MV	1.02	.87 => 1.22
SFC	.0	-.6 => .6	MA	1.01	.86 => 1.21

PCDB ELECTRONICS CALIBRATION SUMMARY

	MEASURED		CALIBRATED		UNITS
	ZERO	PLUS	ZERO	PLUS	
MINV	0.0	4.5	0.0	5.0	OHMM
MNOR	0.0	3.3	0.0	5.0	OHMM

ZERO: 22-OCT-1994 09:16 PLUS: 22-OCT-1994 09:18 COMP: 22-OCT-1994 09:18

PCDB CALIPER CALIBRATION SUMMARY

	MEASURED		CALIBRATED		UNITS
	SMALL	LARGE	SMALL	LARGE	
LA	2.13	10.65	8.00	16.00	IN
SA	0.0	0.0	0.0	0.0	IN

SMALL: 22-OCT-1994 09:16 LARGE: 22-OCT-1994 09:18 COMP: 22-OCT-1994 09:18

LDTD CALIPER CALIBRATION SUMMARY

	MEASURED		CALIBRATED		UNITS
	SMALL	LARGE	SMALL	LARGE	
CALI	7.36	12.40	8.00	12.00	IN

SMALL: 22-OCT-1994 09:03 LARGE: 22-OCT-1994 09:09 COMP: 22-OCT-1994 09:09

CP 40.2 FILE 5 22-OCT-1994 10:03

SHOP SUMMARY

PERFORMED: 28-SEP-1994 15:07
PROGRAM FILE: CSHOP (VERSION 40.2 93/10/15 93/10/15)

LDTD DETECTOR CALIBRATION SUMMARY

DENSITY RESISTIVITY SONDE NUMBER : 4738
 NUCLEAR SERVICE CARTRIDGE NUMBER : 2919
 POWERED DETECTOR HOUSING NUMBER : 3738
 POWERED GAMMA-GAMMA DETECTOR NUMBER : 3732
 LDT LOGGING SOURCE NUMBER : 1786
 LDT CALIBRATION MODE : WATE

MASTER CALIBRATED

	BKGD	AL+FE	AL	UNITS
LL	15.5	92.4	101.7	CPS
LU	59.3	139.6	155.5	CPS
LS	45.2	162.1	179.4	CPS
LITH	4.5	41.2	62.4	CPS
SS1	13.5	184.7	205.6	CPS
SS2	8.9	255.1	280.0	CPS

HV SETTINGS
HV LS: 1188.7 V
HV SS: 1165.2 V

DETECTOR RESOLUTIONS
LS: 8.5 %
SS: 8.4 %

SPECTRUM QUALITY RATIOS

	COMPUTED VALUE	NOMINAL VALUE	TOLERANCE
QRLS	.654	0.65	+/- 0.05
QRSS	.734	0.72	+/- 0.10
QRLI	.348	0.39	+/- 0.06
QLIR	1.368	1.39	+/- 0.06
QR	.994	1.00	+/- 0.02

BKGD: 28-SEP-1994 14:34 AL: 28-SEP-1994 15:02 AL+FE: 28-SEP-1994 14:56

CP 40.2 FILE 15 28-SEP-1994 15:07

SHOP SUMMARY

PERFORMED: 19-SEP-1994 15:18
PROGRAM FILE: CCSHOP (VERSION 40.2 93/10/15 93/10/15)

CNTH DETECTOR CALIBRATION SUMMARY

NEUTRON COMPENSATED CARTRIDGE NUMBER: 290
NEUTRON SOURCE SERIAL NUMBER : 2549
THERMAL HOUSING NUMBER : 4373
THERMAL CALIBRATED NEUTRON BOX : 3221

INPUT	PLUS REFERENCE COUNTS	SHOP TANK COUNTS	SHOP JIG COUNTS	GAIN
CNTC	6031.00	6410.37	2874.25	.941
CFTC	2793.00	2702.65	1228.84	1.033
RATIO	2.159	2.372	2.339	

SHOP COUNTS TEMPERATURE AND HOUSING SIZE CORRECTED

BKGD: 19-SEP-1994 14:49 TANK: 19-SEP-1994 15:00 COMP: 19-SEP-1994 15:00

CP 40.2 FILE 0 19-SEP-1994 15:18

COMPANY	PETROGLYPH OPERATING CO.	SCHL. FR	57910 F
		SCHL. TD	58250 F
WELL	UTE TRIBAL #4-17	DRLR. TD	58320 F
		Elev: KB	59200 F
FIELD	ANTELOPE CREEK	DF	59190 F
COUNTY	DUCHESNE	STATE	UTAH
		GL	59100 F

Schlumberger

SIMULTANEOUS
**COMPENSATED NEUTRON-
LITHO-DENSITY**

Schlumberger

DUAL INDUCTION - SFL

COMPANY PETROGLYPH OPERATING CO. E I W E

WELL UTE TRIBAL #4-17 14 1994

FIELD ANTELOPE CREEK OF OIL, GAS & MINING

COUNTY DUCHESSNE STATE UTAH

LOCATION 697 FNL & 636 FWL NW/NW Other Services: DIL LDT/CNL PCD

API SERIAL NO. 43-013-31464

SECT. 17 TWP. 5 S RANGE 3 W

Permanent Datum GROUND LEVEL Elev. 5910.0 F
Log Measured From KELLY BUSHING 10.0 F above Perm. Datum
Drilling Measured From KELLY BUSHING

Date 22-OCT-1994

Run No. ONE

Depth Driller 5832.0 F

Depth Logger (Schl.) 5825.0 F

Blm. Log Interval 5819.0 F

Top Log Interval 426.0 F

Casing-Driller 8 5/8" @ 427.0 F

Casing-Logger 426.0 F

Bit Size 7 7/8" @ 5825.0 F

Type Fluid in Hole KCL/water

Dens. 8.30 LB/G 27.0 S

pH 11.5

Source of Sample FLOWLINE

Rm @ Meas. Temp. 1.390 OHMM @ 68.0 DEGF

Rmf @ Meas. Temp. 1.390 OHMM @ 68.0 DEGF

Rmc @ Meas. Temp. @

Source: Rmf Rmc MEASURED N/A

Rm @ BHT 648 OHMM @ 154 DEGF

Circulation Ended 0300 22-OCT-1994

Logger on Bottom 1012 22-OCT-1994

Max. Rec. Temp. 154 DEGF

Equip. Location 8264 VERNAL

Recorded By G. TRACY

Witnessed By DAN LINDSEY

The well name, location and borehole reference data were furnished by the customer

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations made by any of our officers, agents or employees. These interpretations are also subject to Clause 4 of our General Terms and Conditions as set out in our current Price Schedule.

Run No.	ONE
Service Order No.	638508
Drilling Fluid Level	0.0 F
Salinity	1500.0 PPM
Rmf @ BHT	648 OHMM @ 154. DEGF @
Rmc @ BHT	@ 154. DEGF @
Logging Speed	1800.0 F/HR
EQUIPMENT DATA	
Tool Number 1	TCM AB 1147
Tool Number 2	SGC SA 8264
Tool Number 3	PCD B 91
Tool Number 4	DIC EC 465
Tool Number 5	DIS HD 468
Tool Number 6	
Tool Number 7	See calib.
Tool Number 8	tail for
Tool Number 9	nuclear
Tool Number 10	tool
Tool Number 11	numbers.
Tool Number 12	

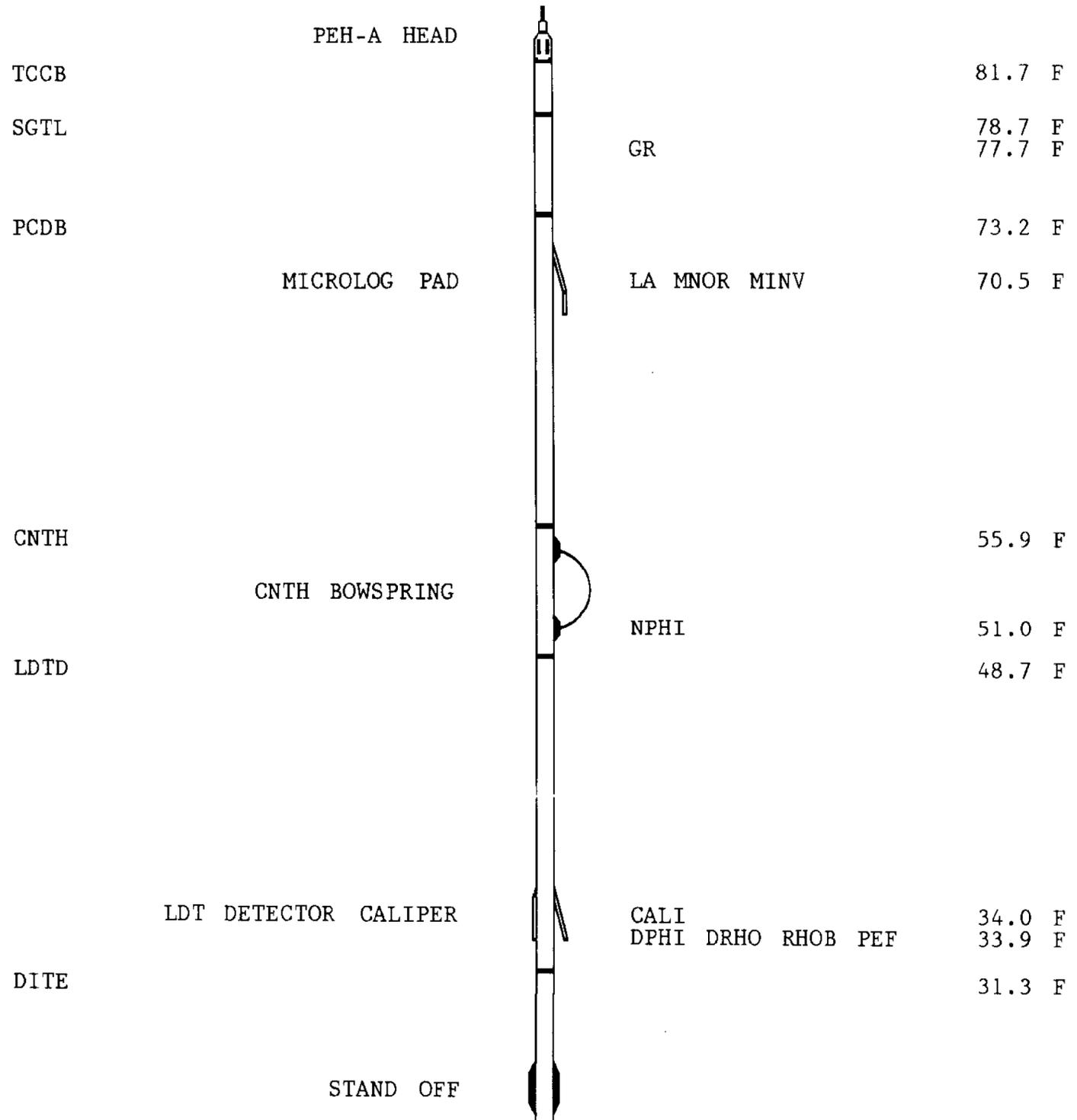
REMARKS

REMARKS:

Bowstring used on neutron tool.
 1.5" standoffs used on induction tool.
 Sp noisy through entire log.
 Log run on sand matrix (2.68 g/cc).

Crew: McCurdy, Sunkees & Thorlaksen

LOGGING TOOL STRING SKETCH



SP	10.3 F
ILD	9.5 F
SFLU	6.5 F
ILM	6.0 F

STANDOFF BOTTOM NOSE

TOOL ZERO

TOTAL TOOL STRING LENGTH IS 84.7 F.
 TOTAL TOOL STRING WEIGHT IS 1473. LB IN AIR.

FILES SPLICED	SPLICE DEPTH
9 TO 10	3655.0 F

ACCUMULATED INTEGRATION VALUES SUMMARY:

Integrated Hole Volume:	2297.98 F3	FROM 5825.00 F	TO 426.000 F
Integrated Cement Volume:	1407.21 F3	FROM 5825.00 F	TO 426.000 F
(ASSUMING 5.50000 IN O.D. CASING)			

EVENT MARK SUMMARY:

OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
Integrated Hole Volume	10.0000 F3	LEFT EDGE
Integrated Cement Volume	10.0000 F3	RIGHT EDGE

GR(GAP)

TENS(LBF)

0.0

200.00

10000.

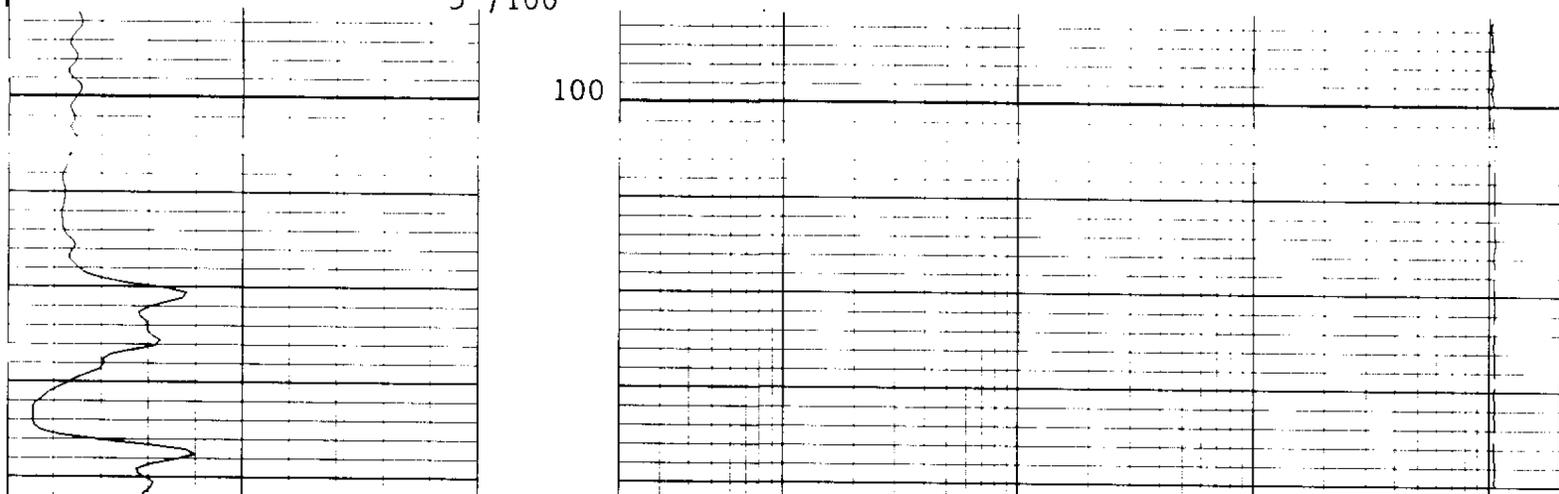
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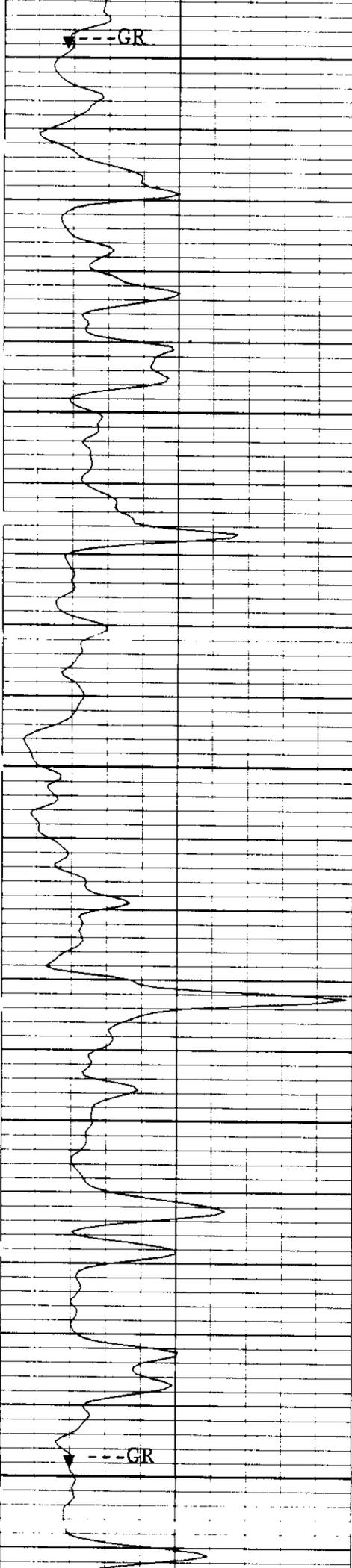
CP 40.2 FILE 2 22-OCT-1994 13:30

 INPUT FILE(S) CREATION DATE
 10 22-OCT-1994 13:15

5"/100'

100



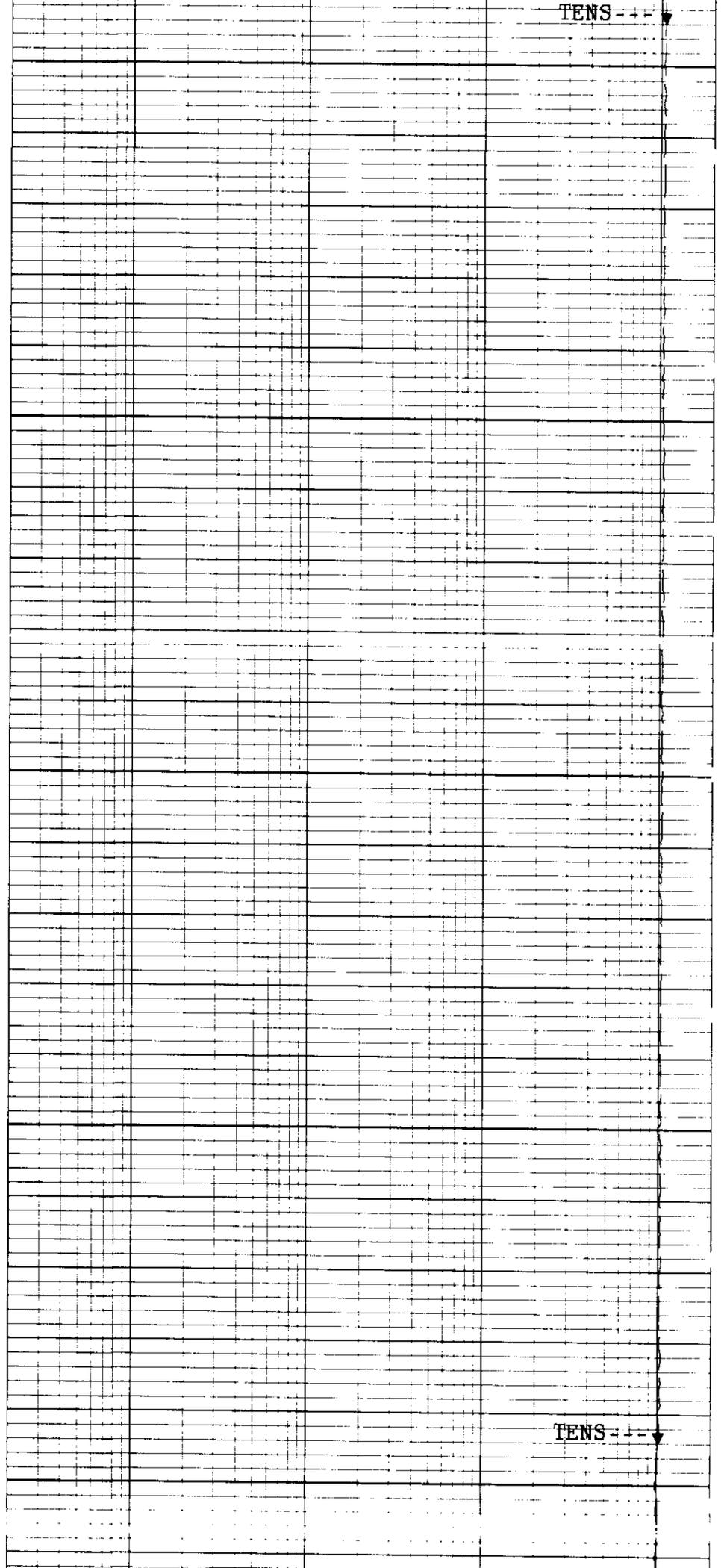


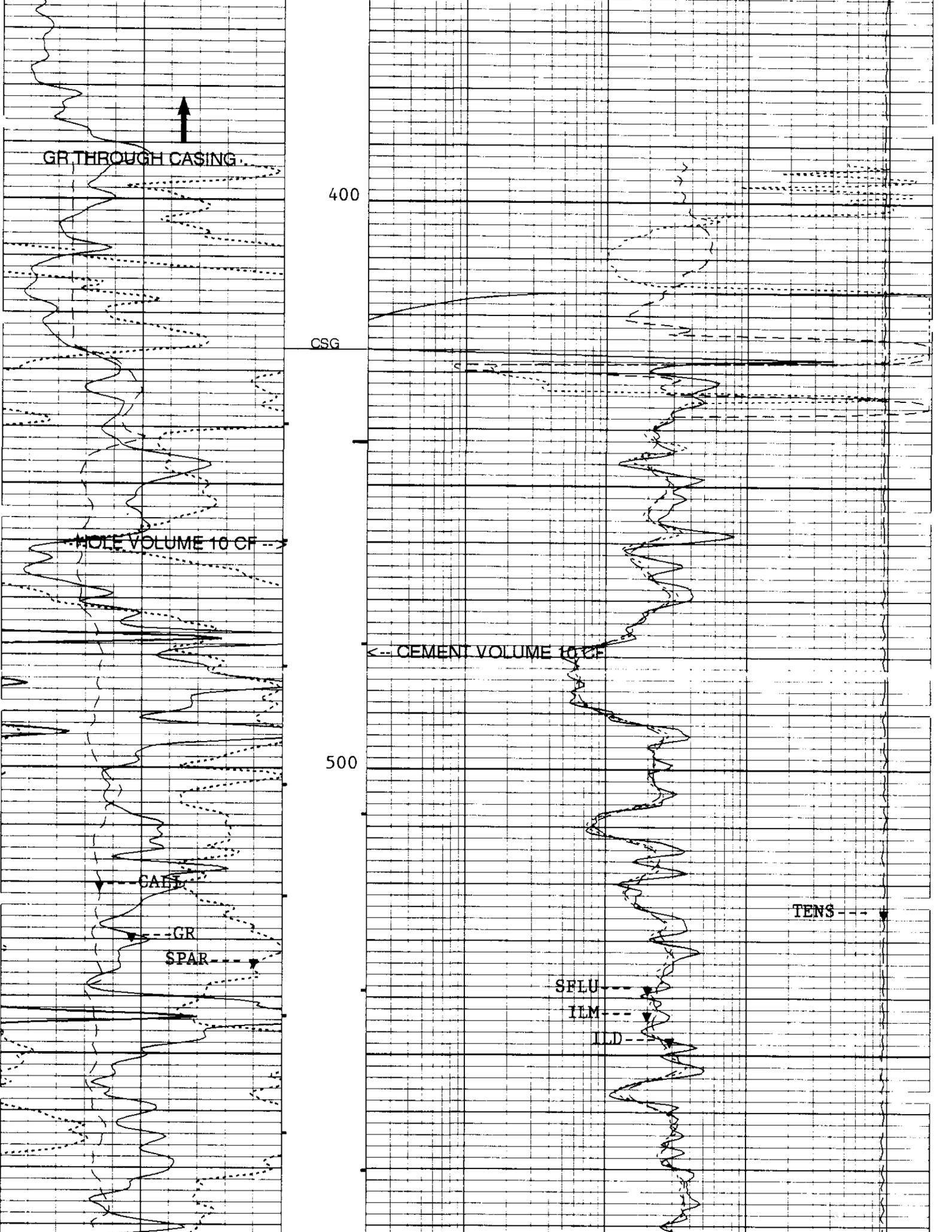
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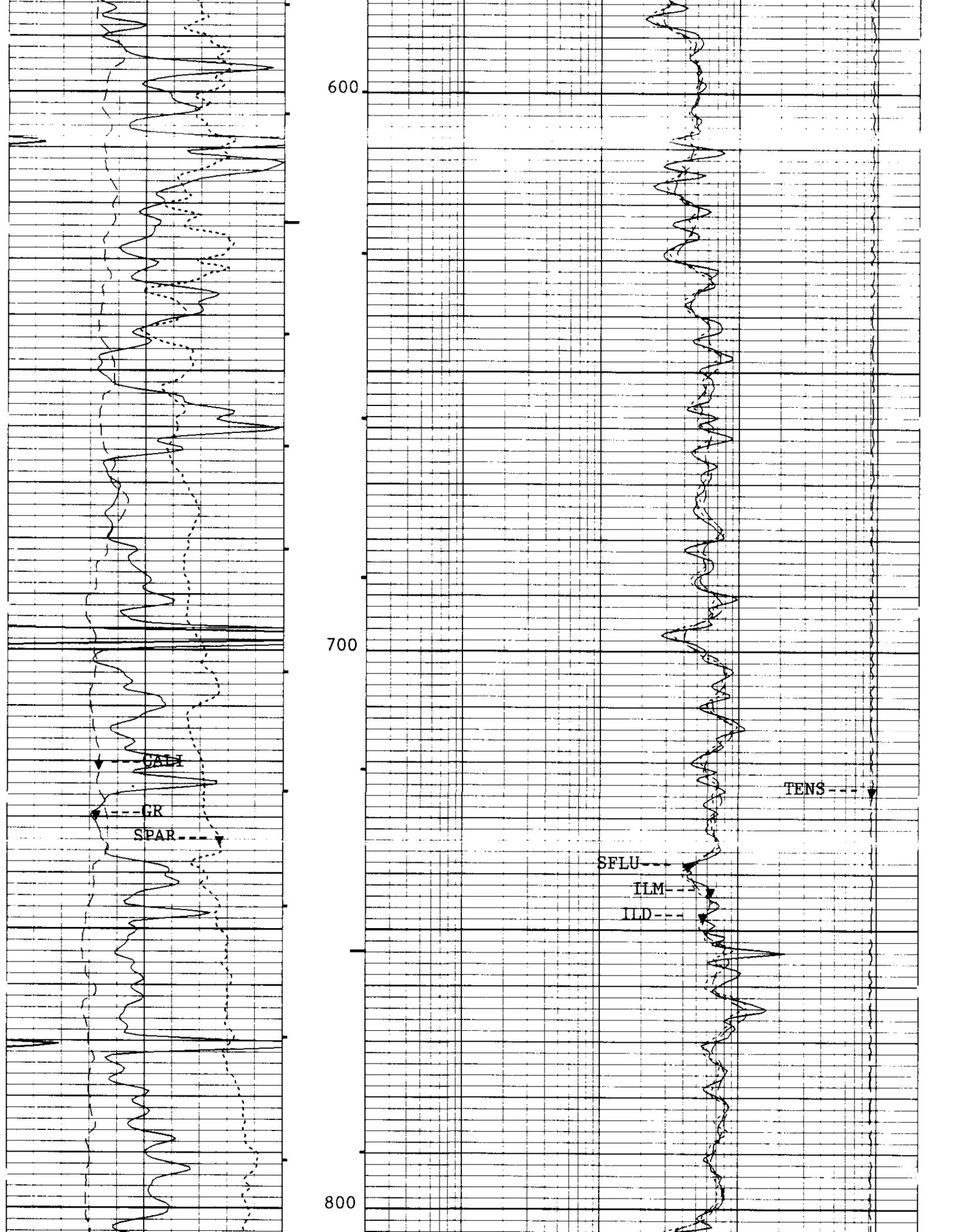
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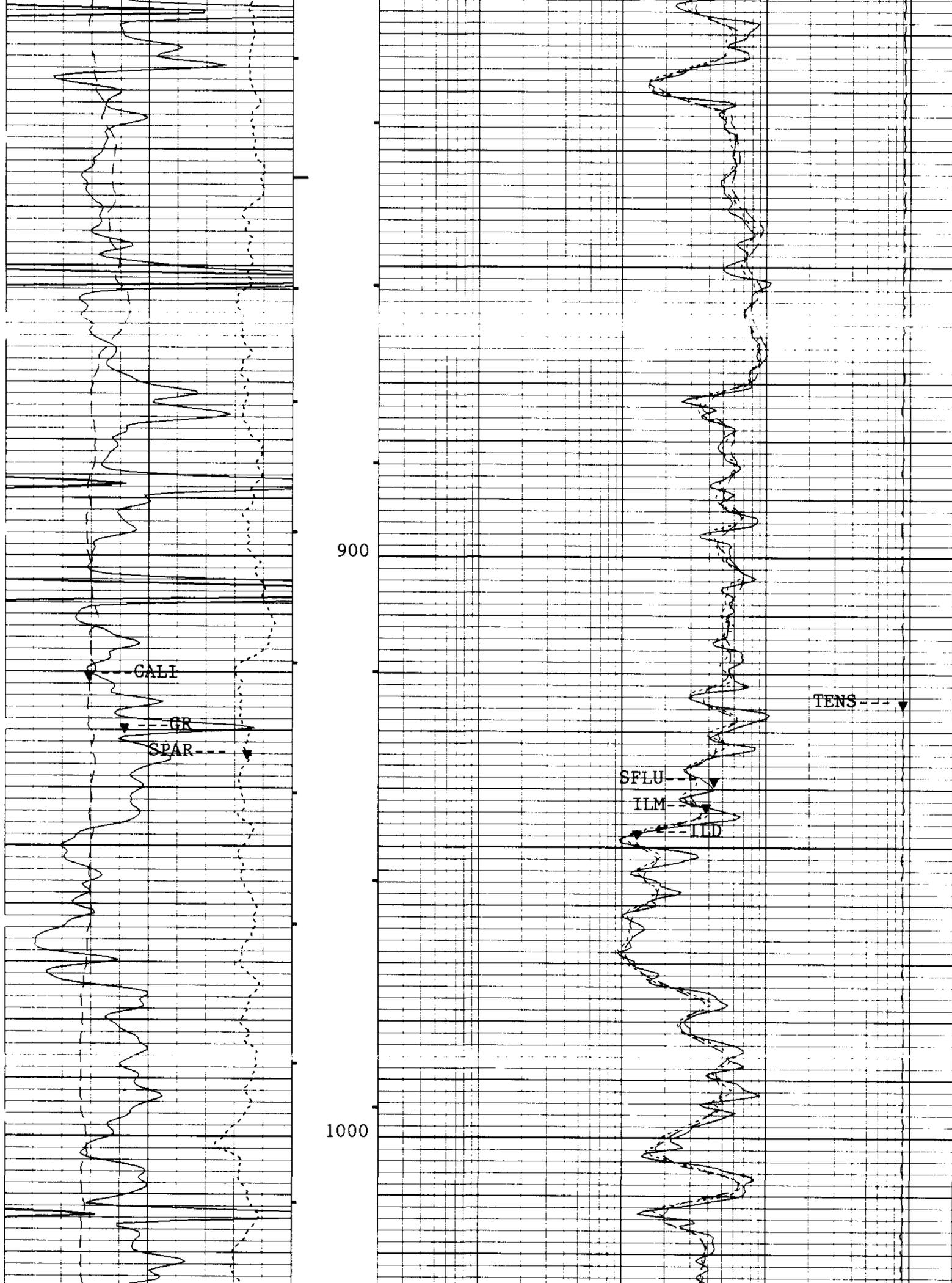
TENS ---

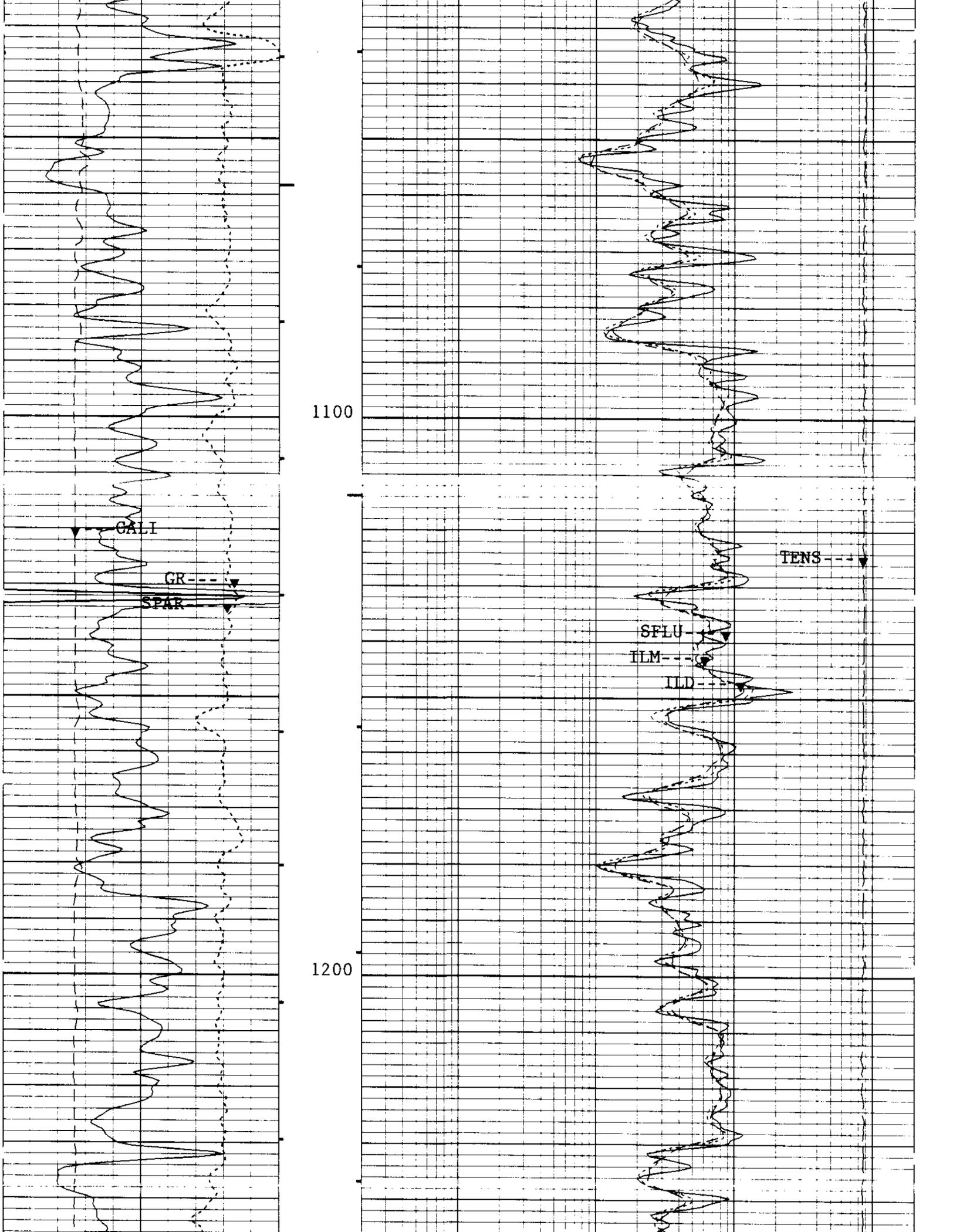
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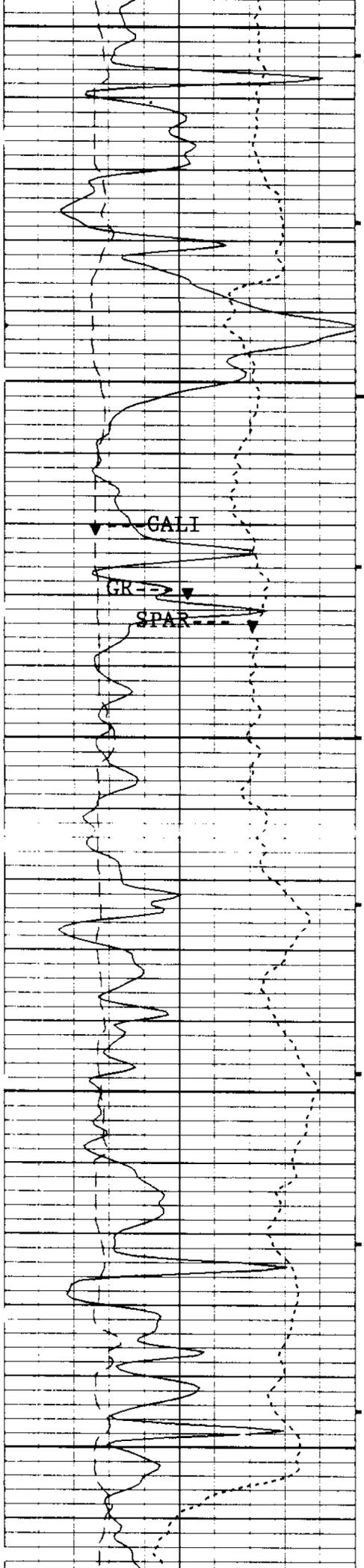












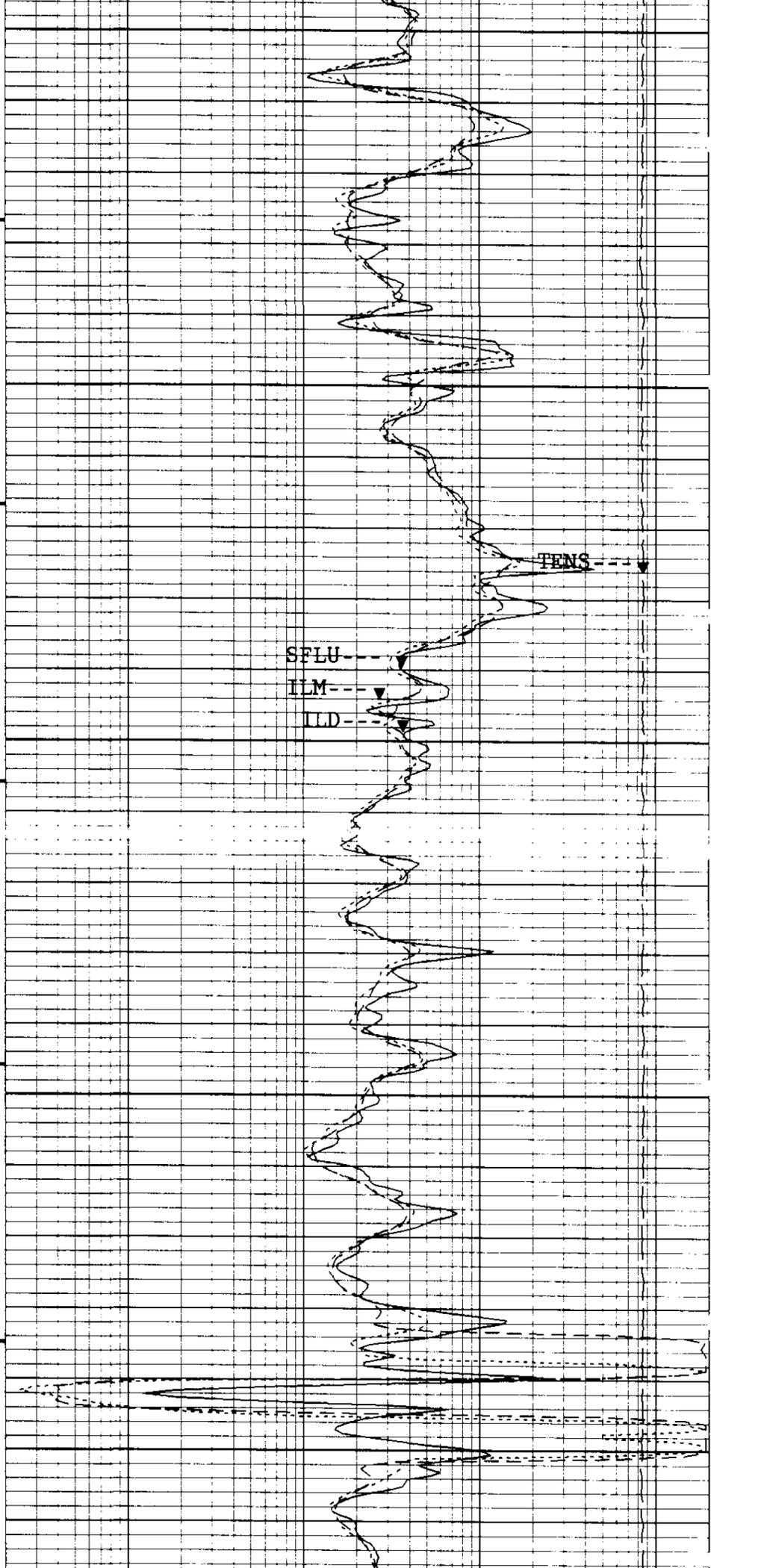
1300

CALI

GR

SPAR

1400

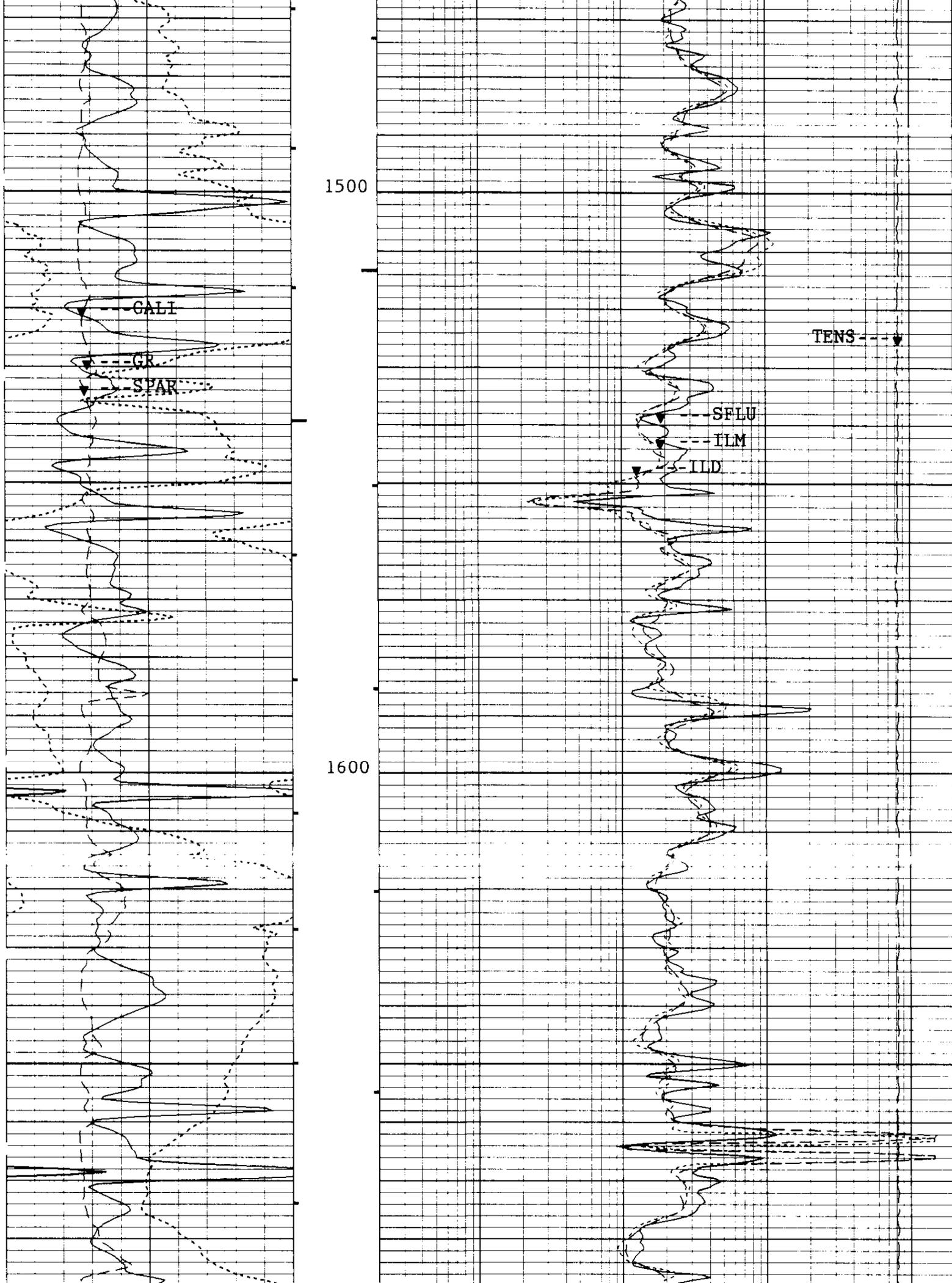


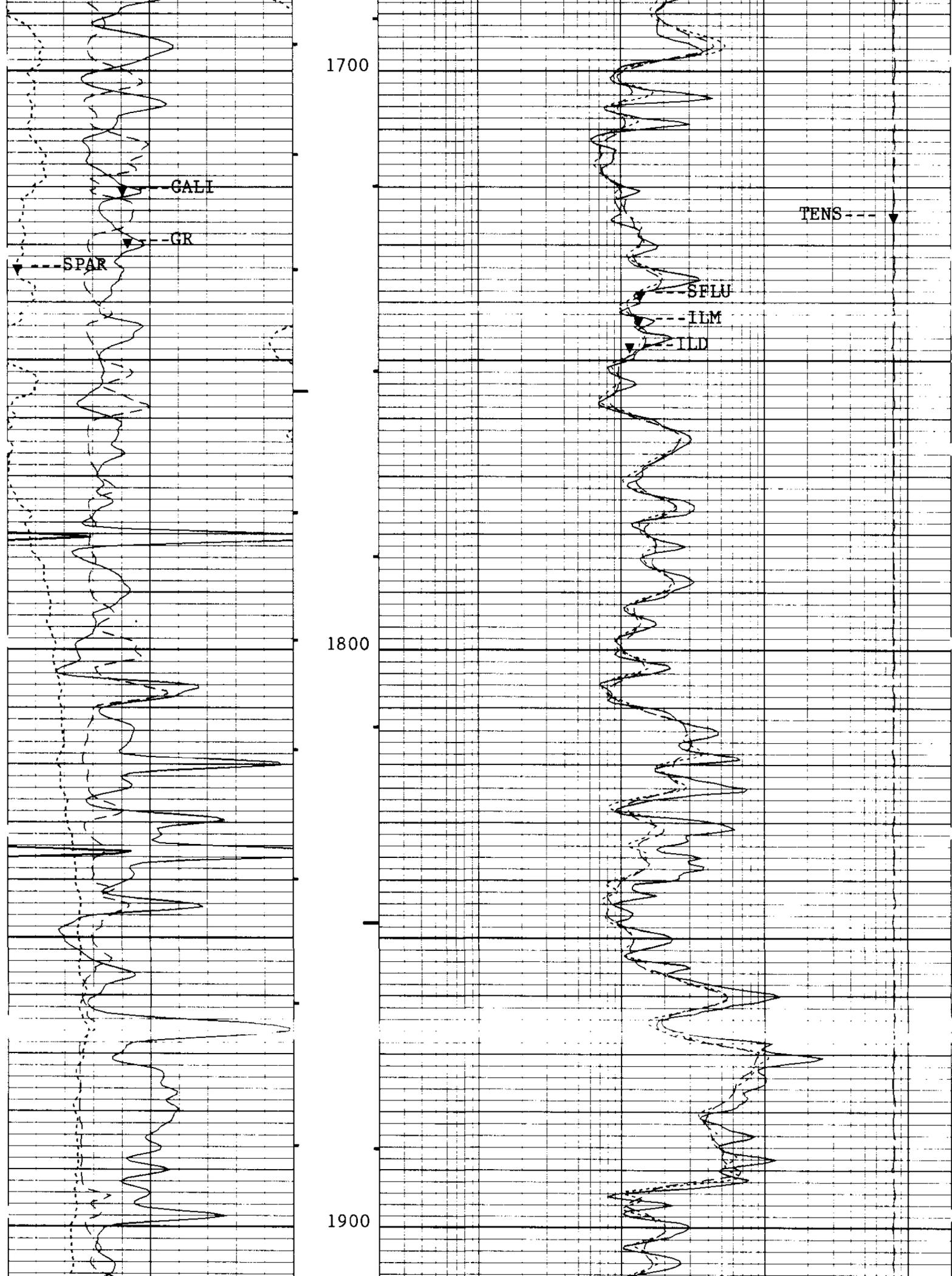
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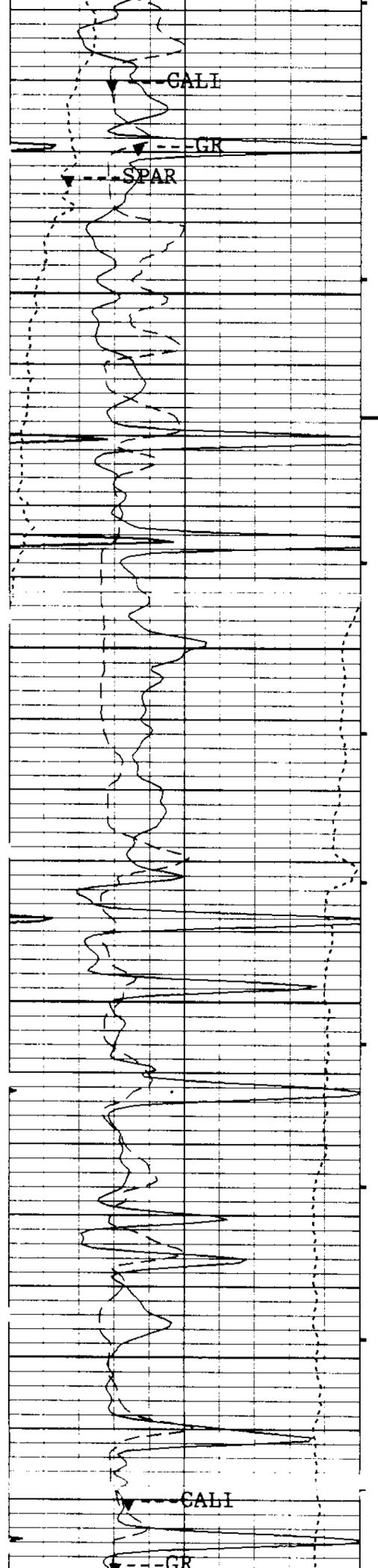
SFLU

ILM

ILL

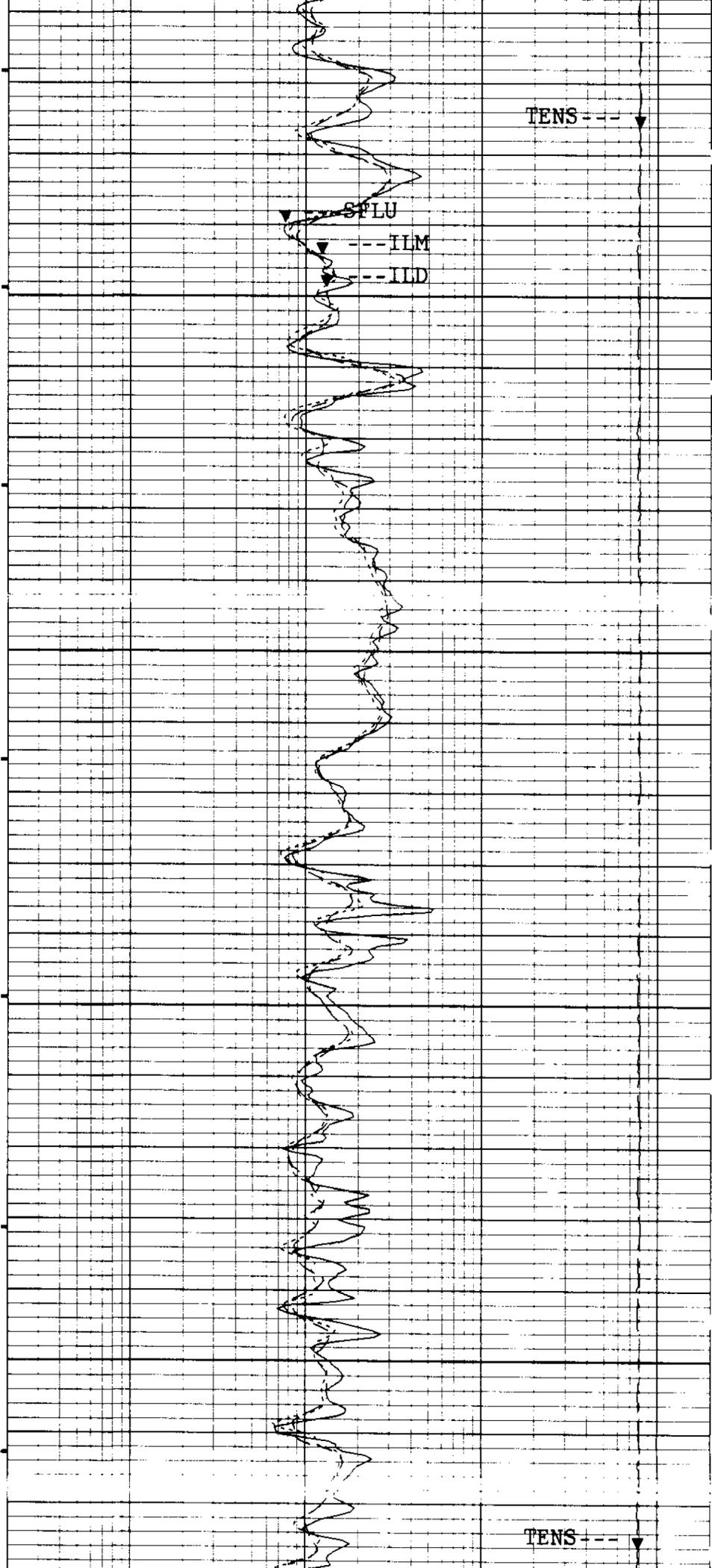


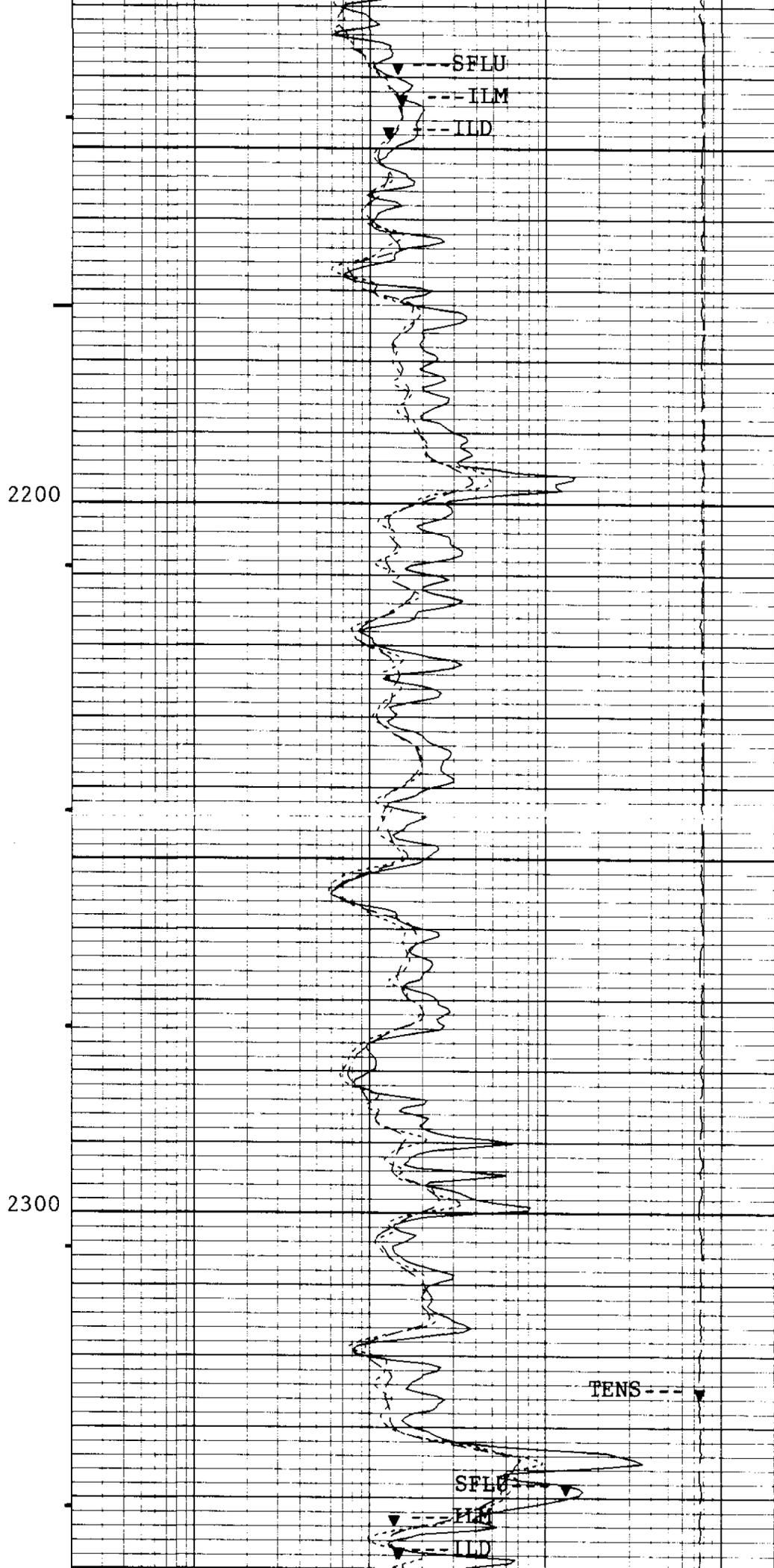
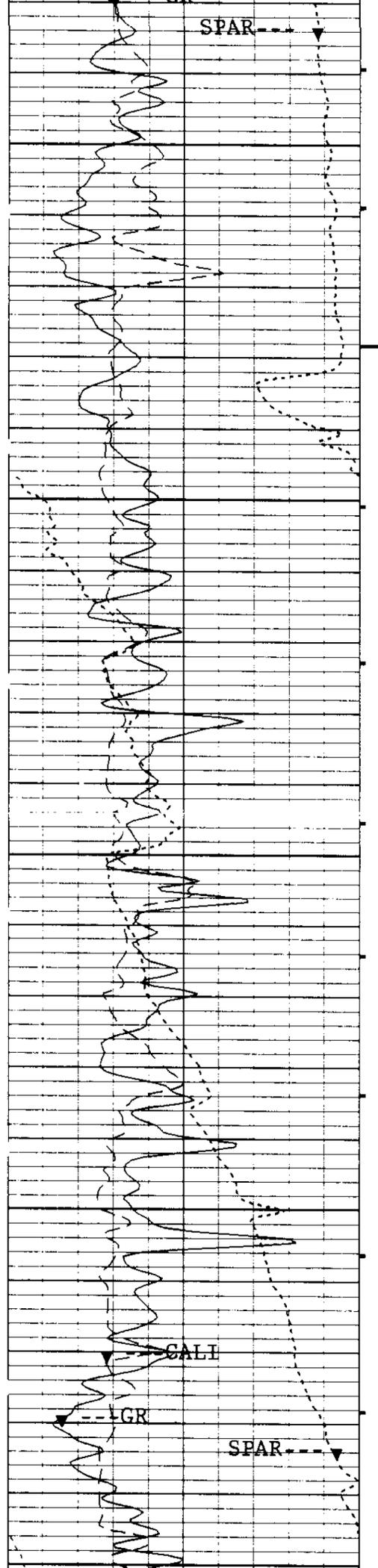


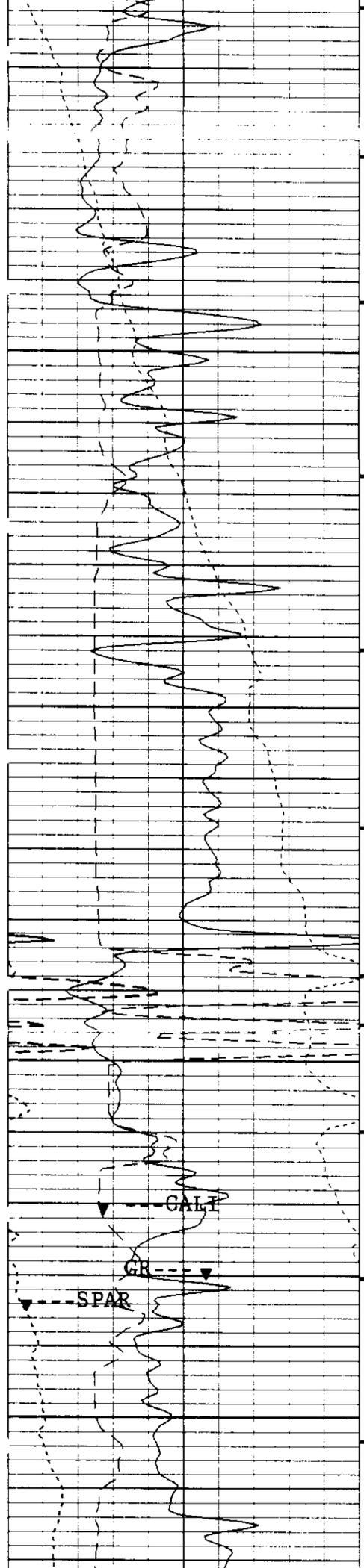


2000

2100

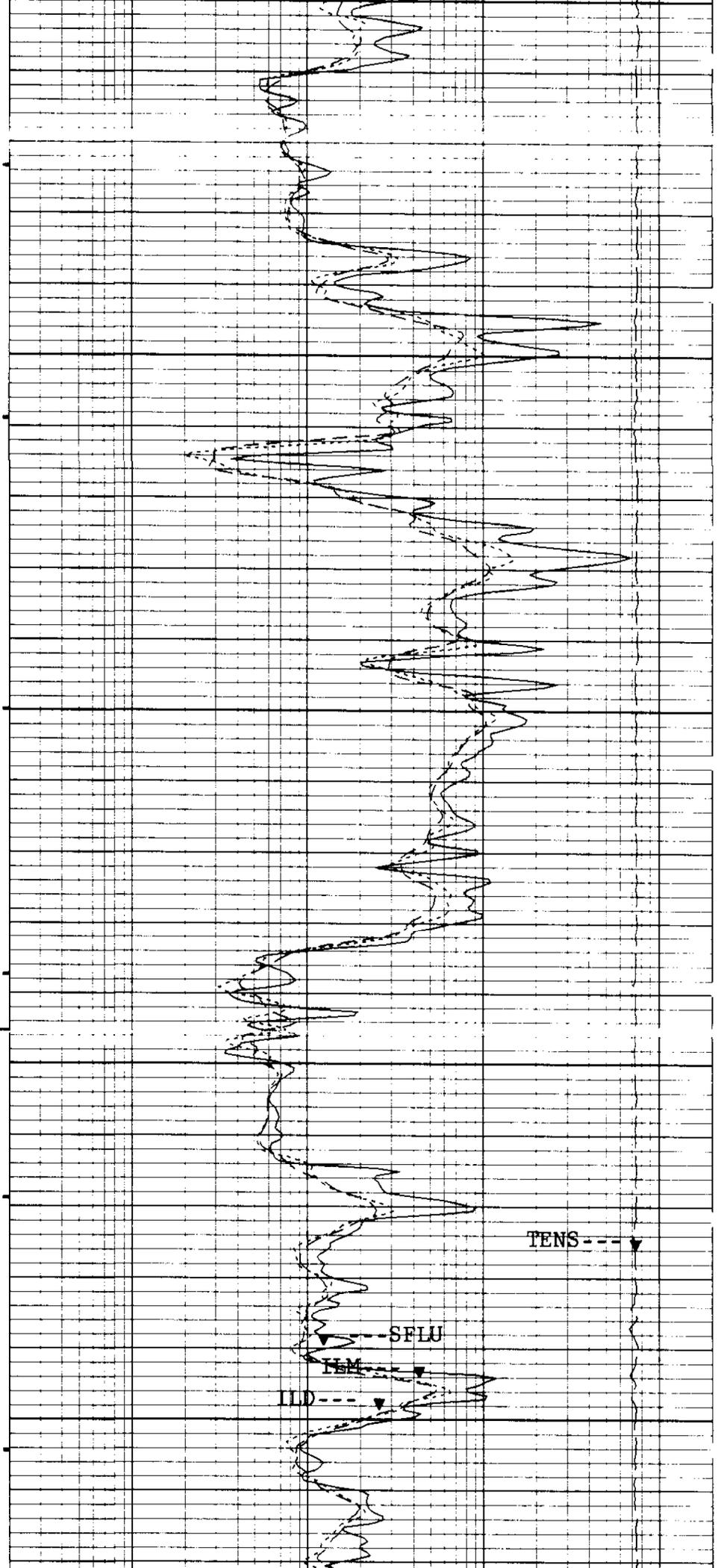






2400

2500

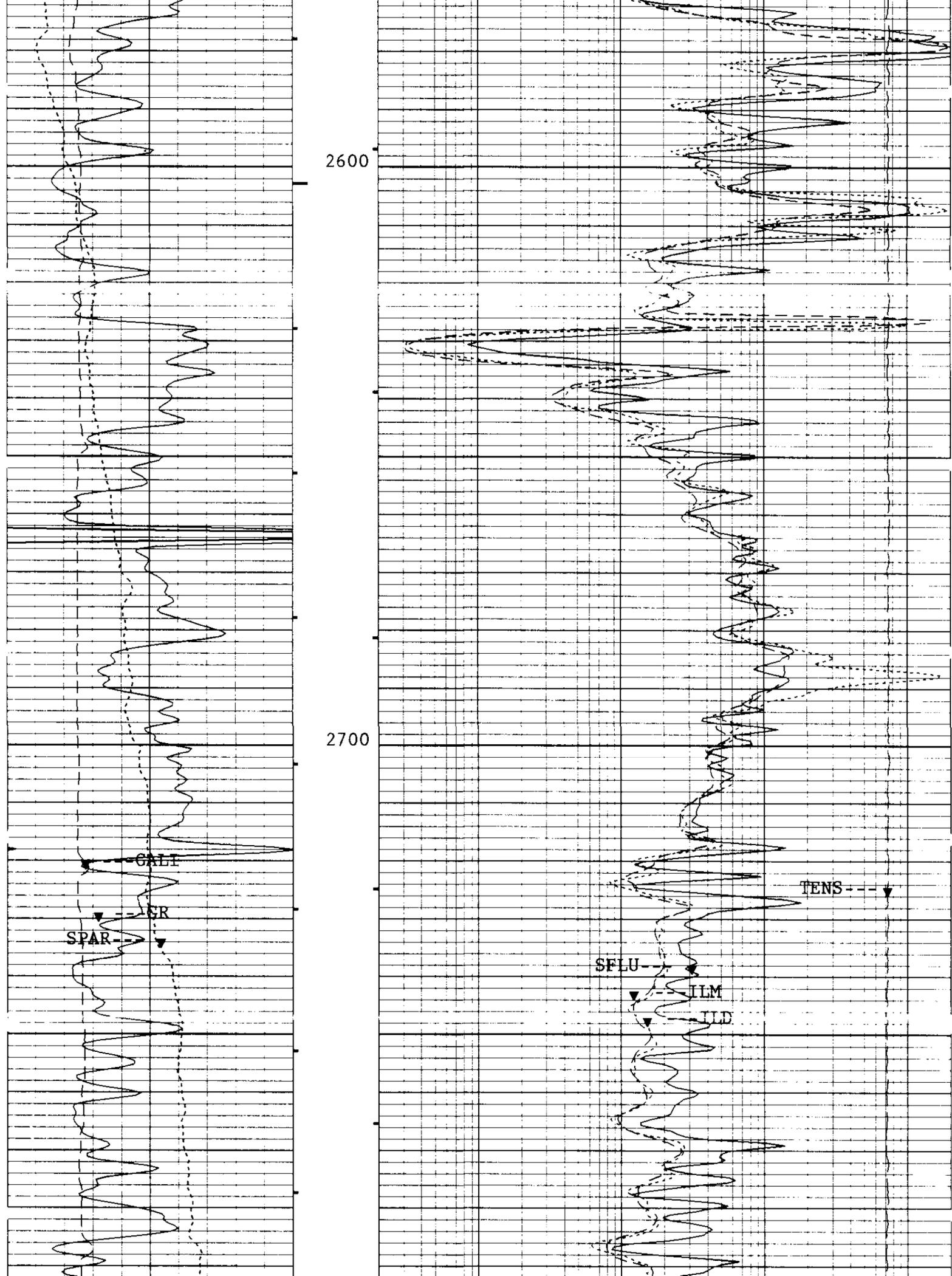


TENS---

SFLU

TEM

IID



2600

2700

GALT

SPAR

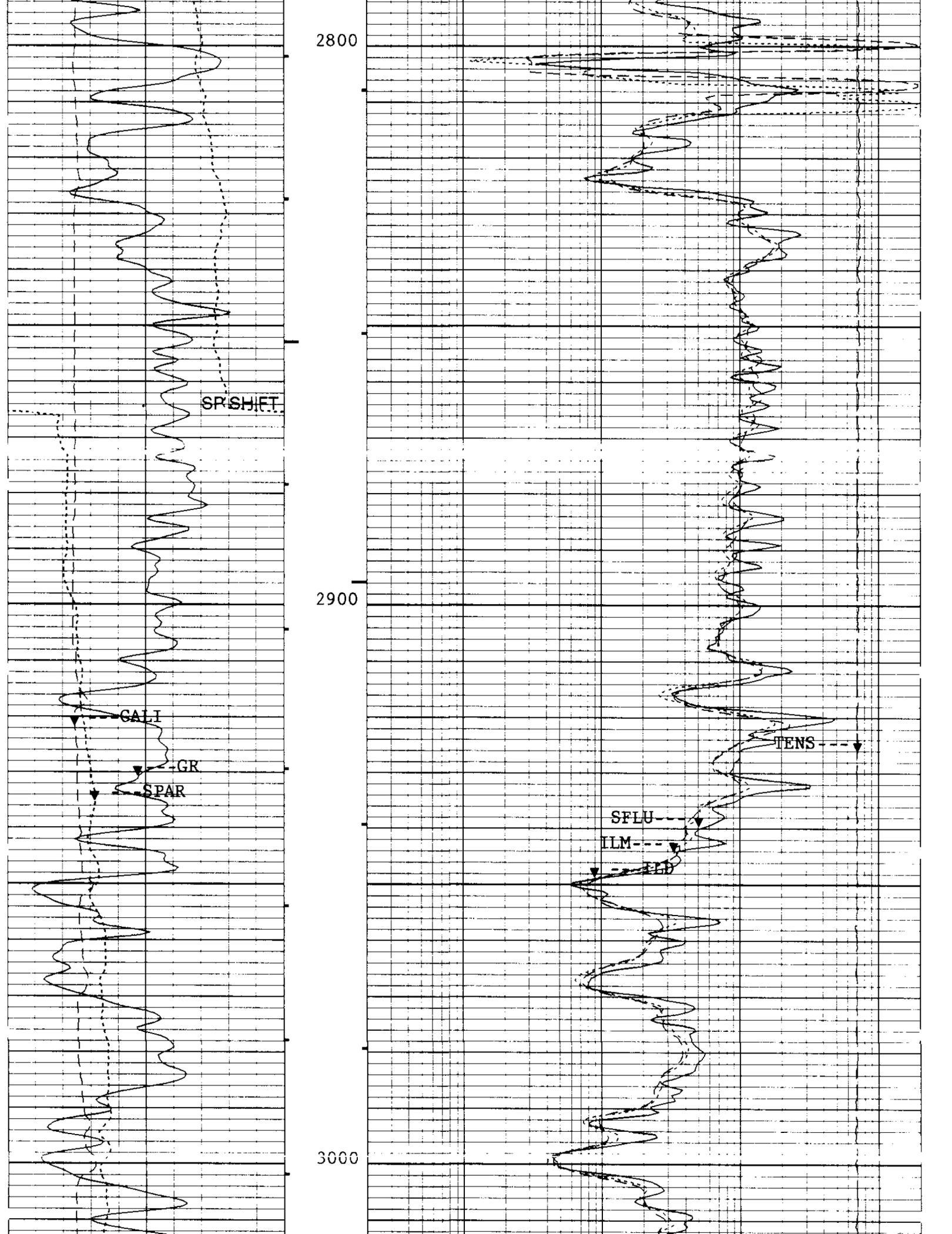
CR

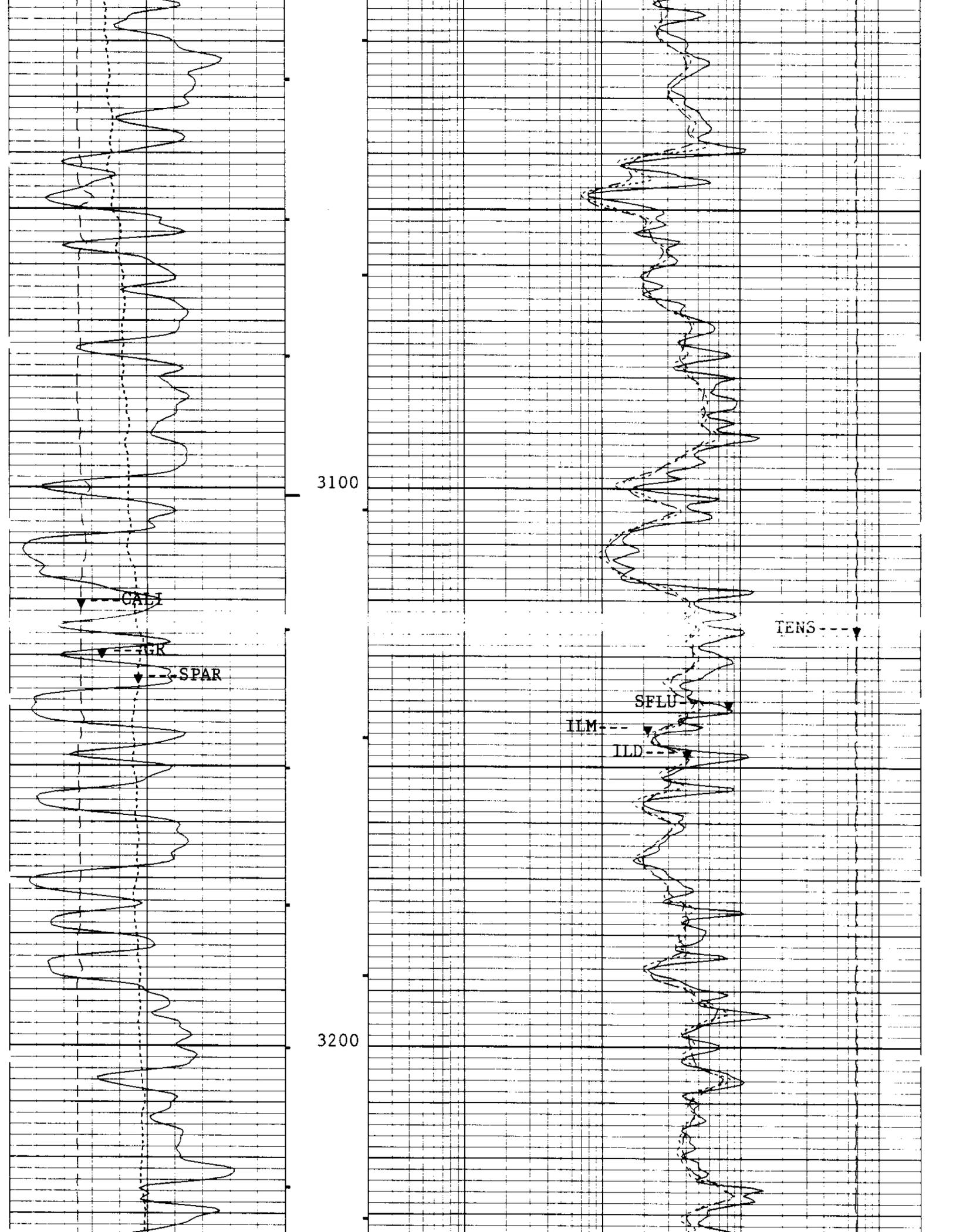
TENS

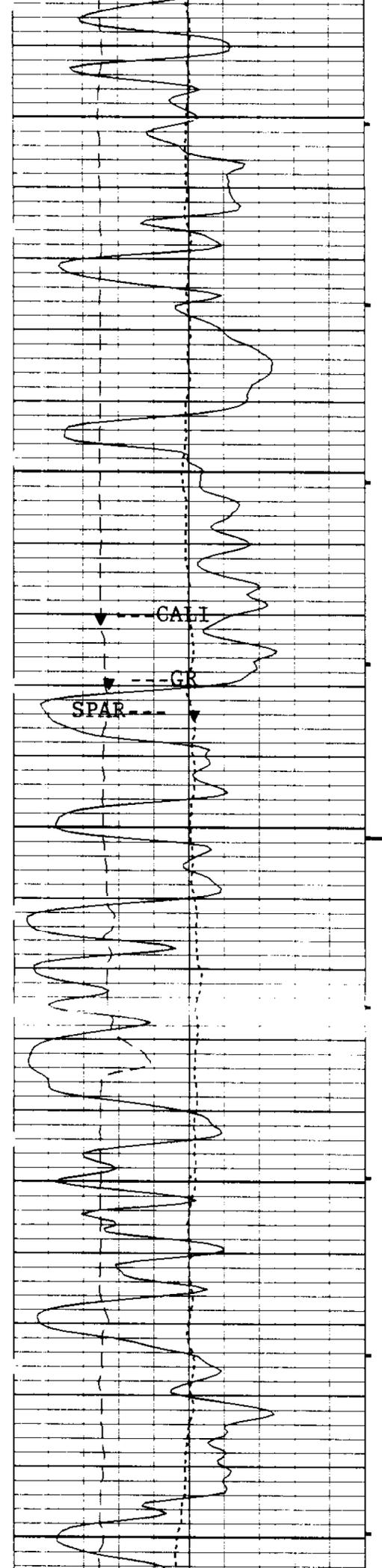
SFLU

ILM

ILD

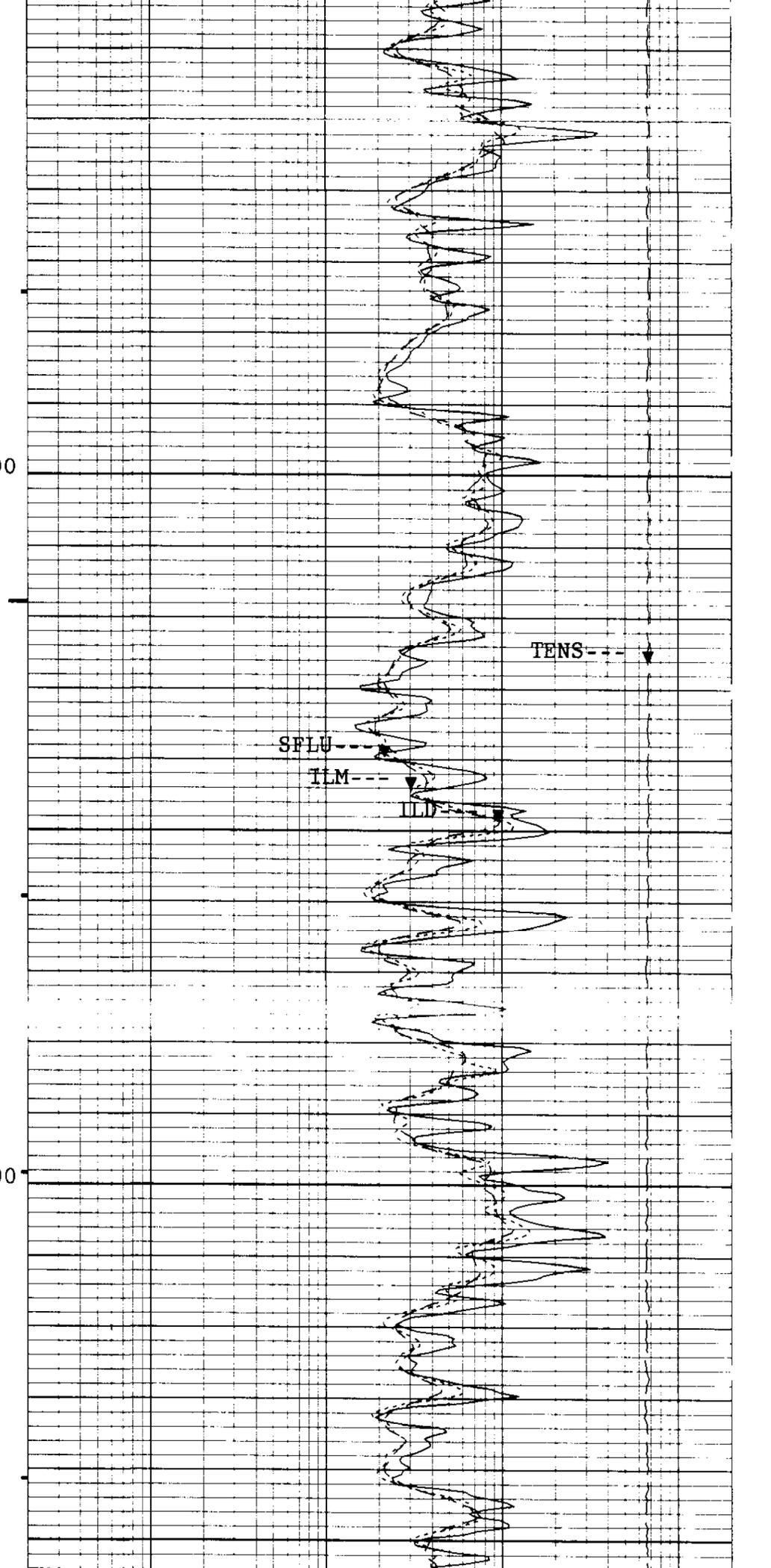


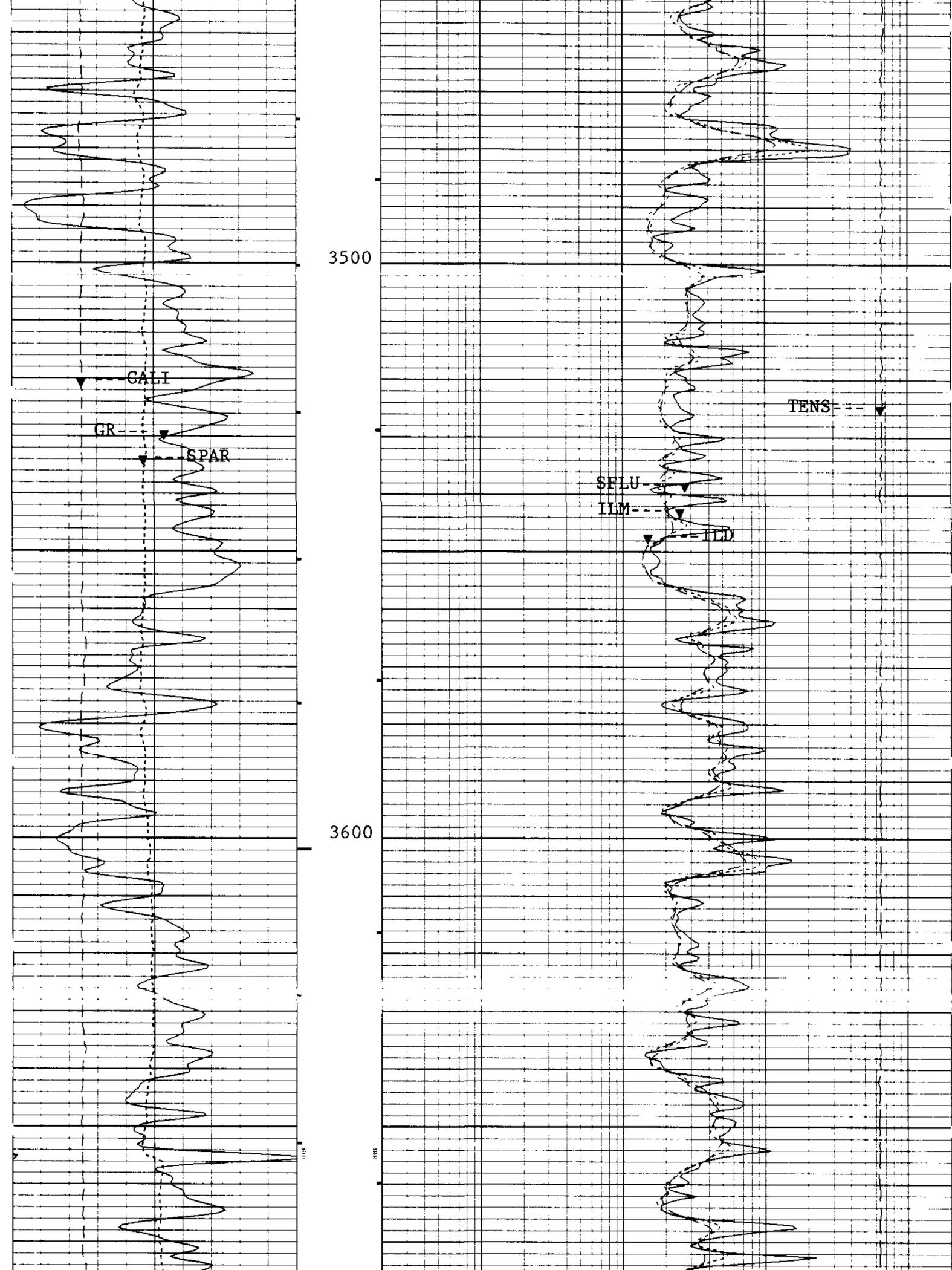


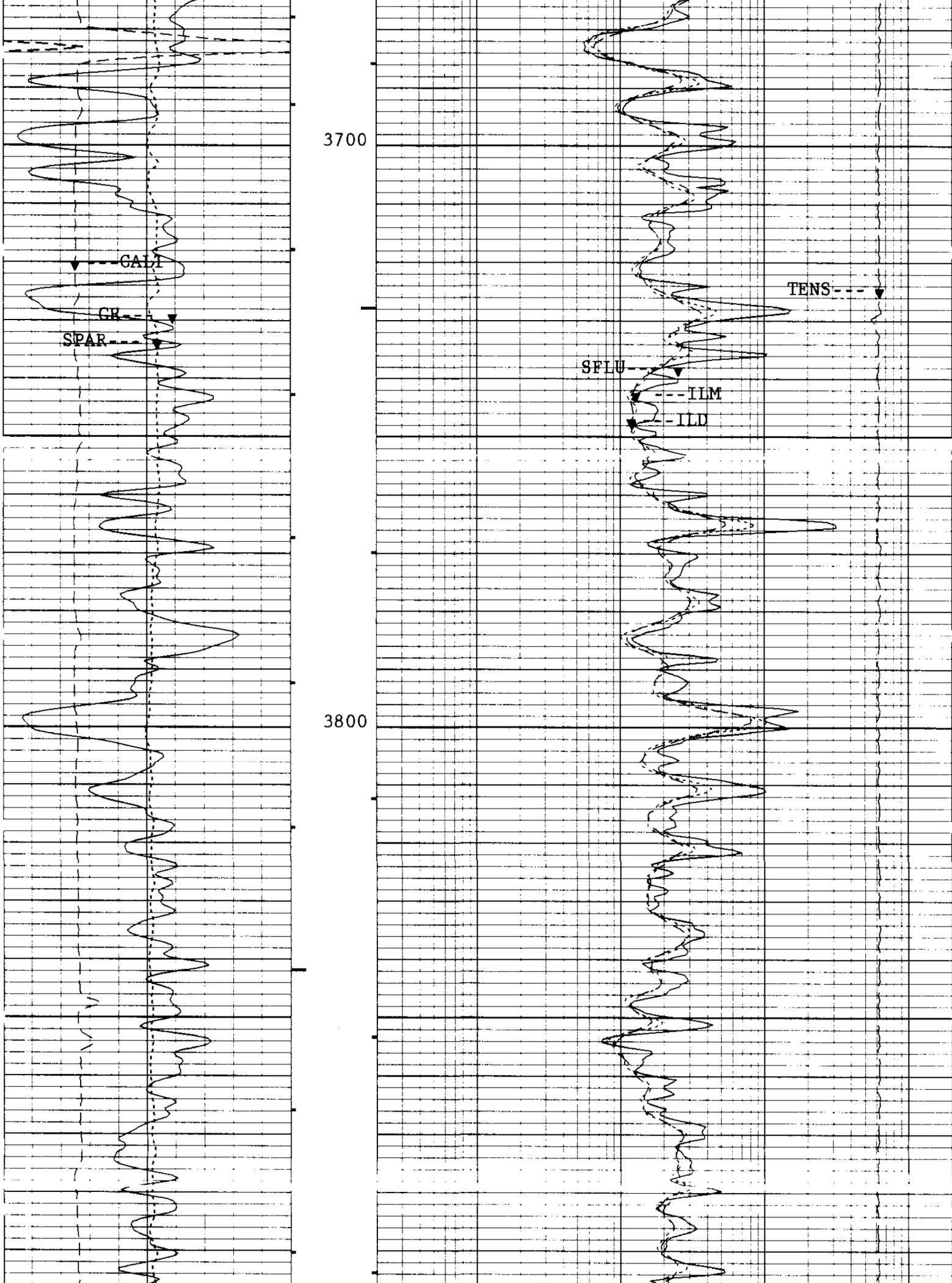


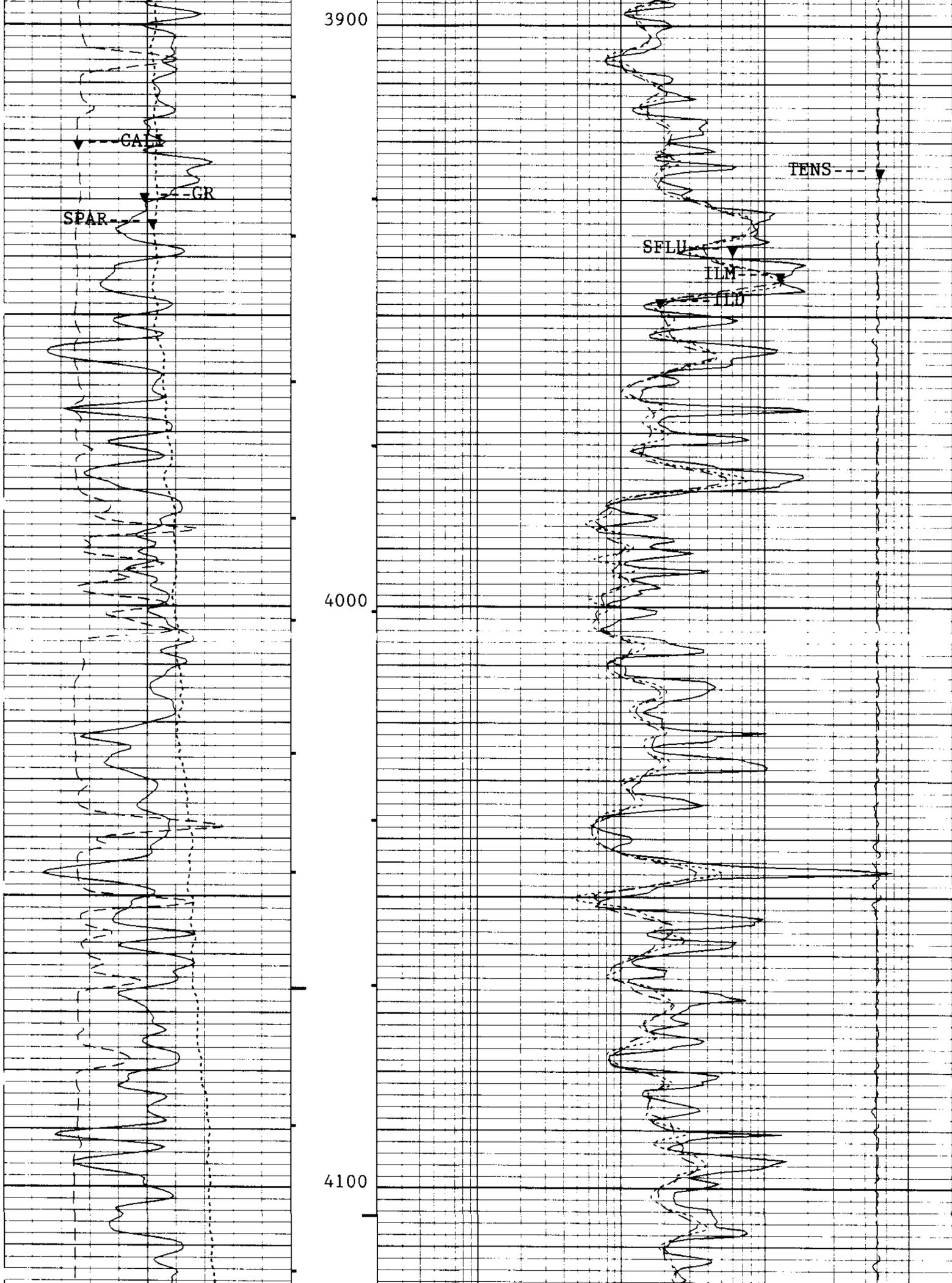
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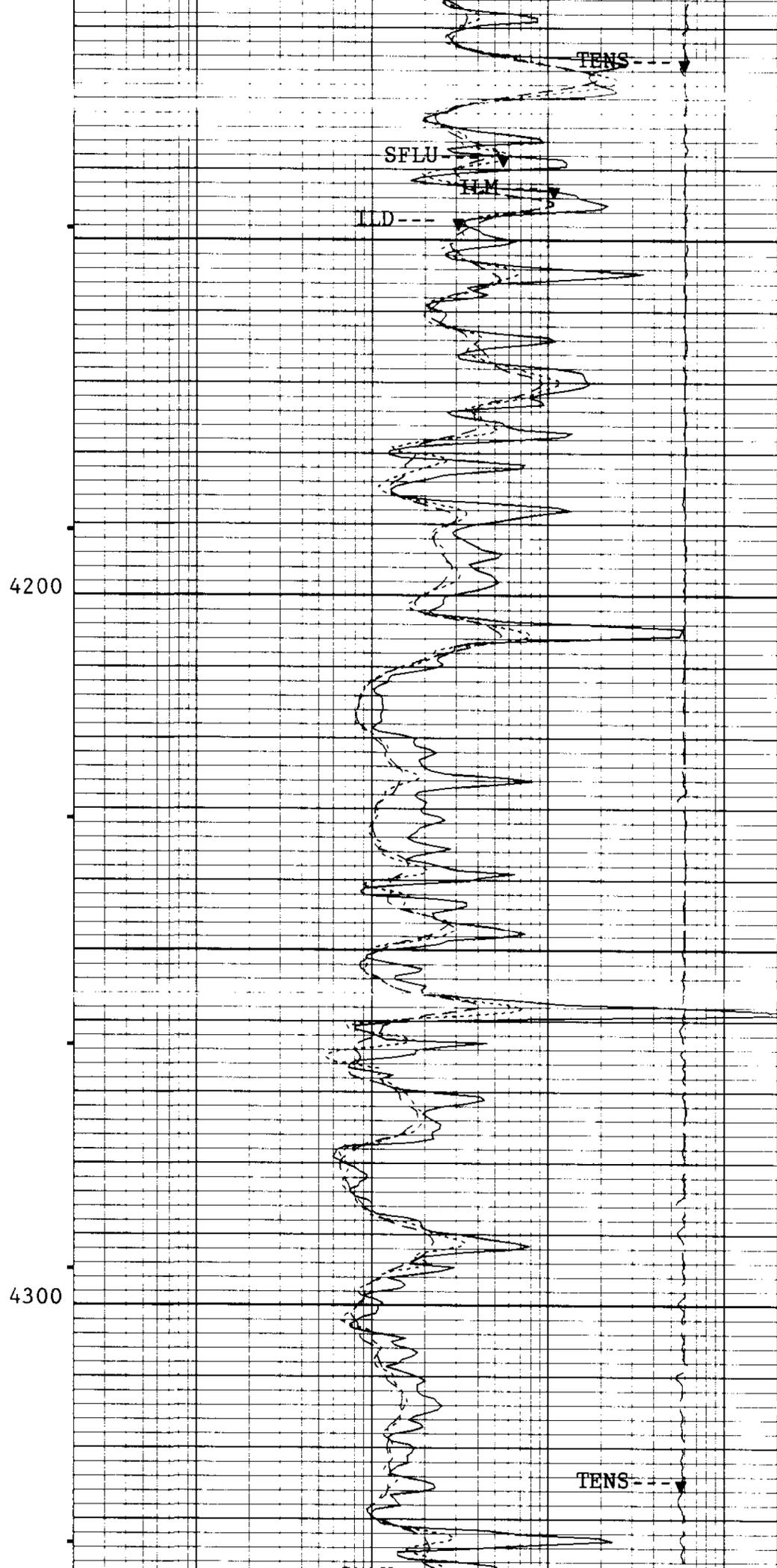
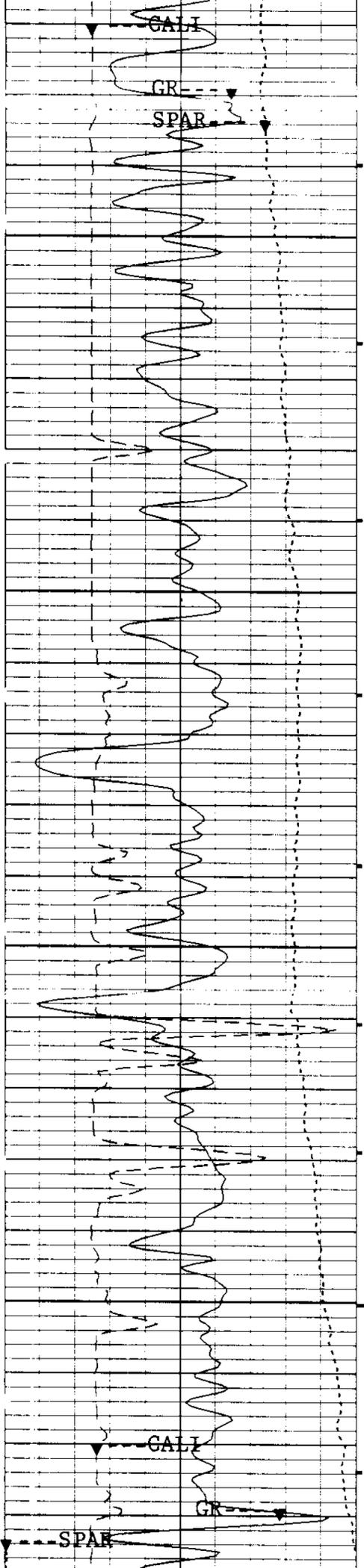
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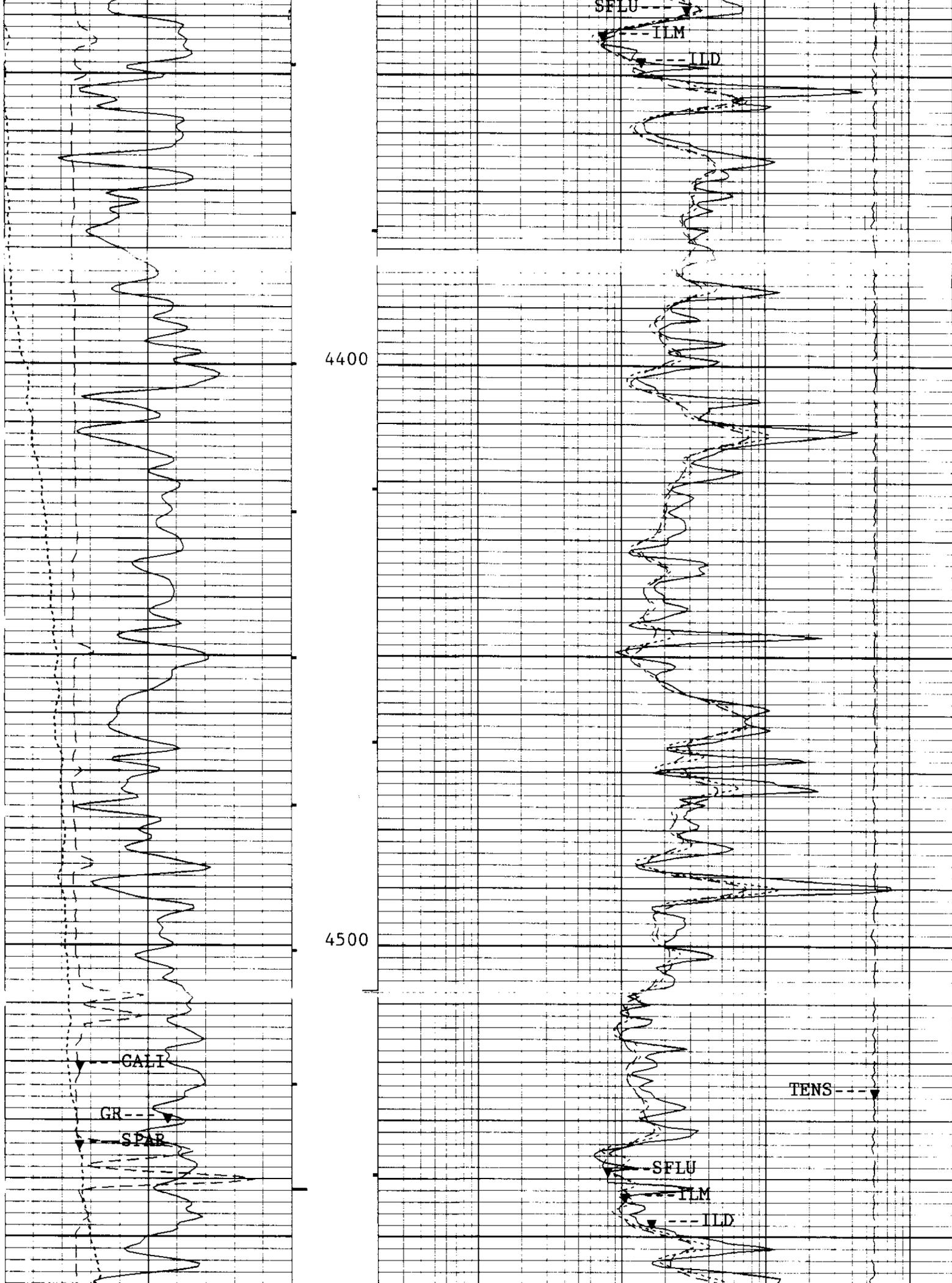


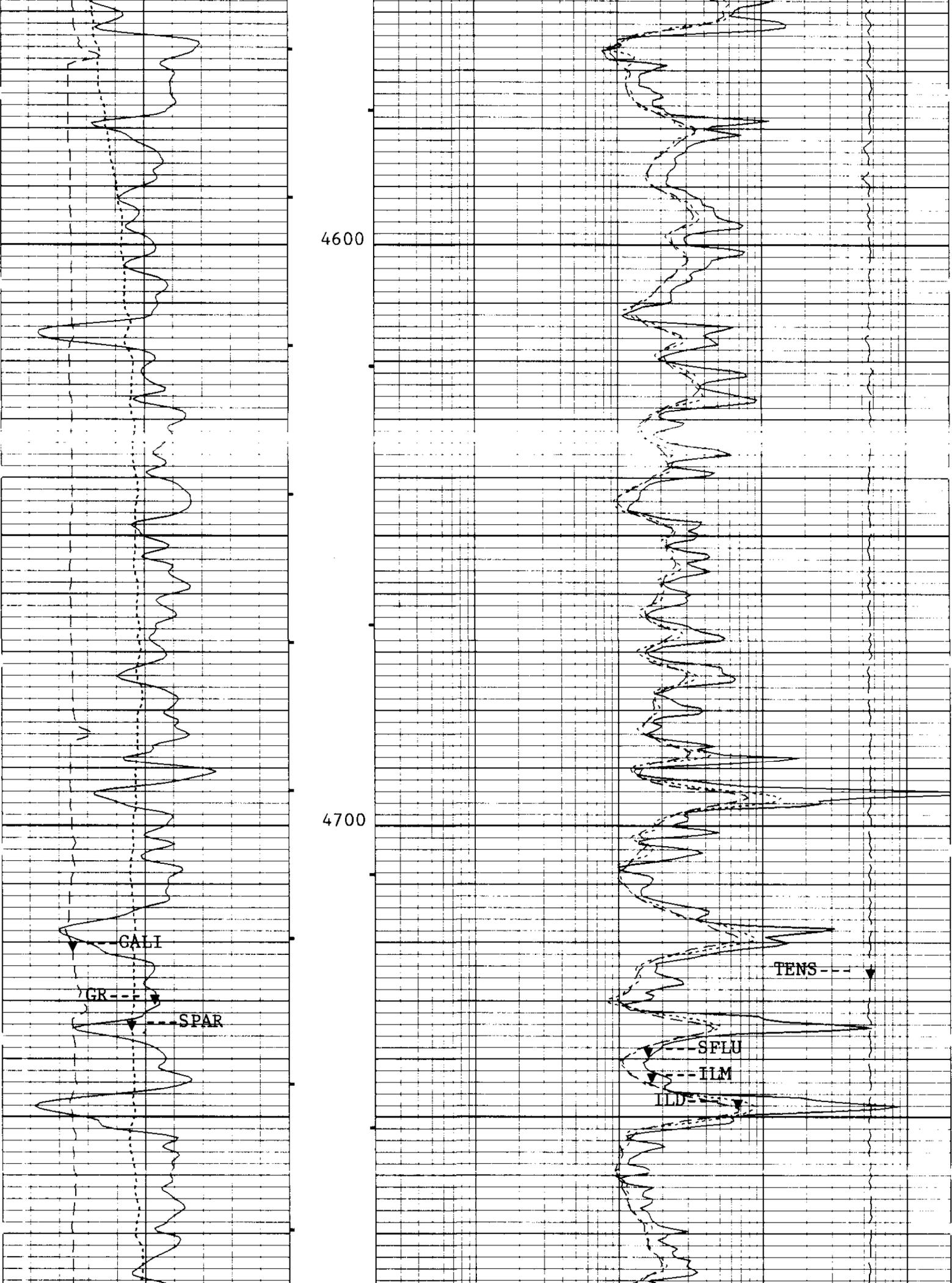


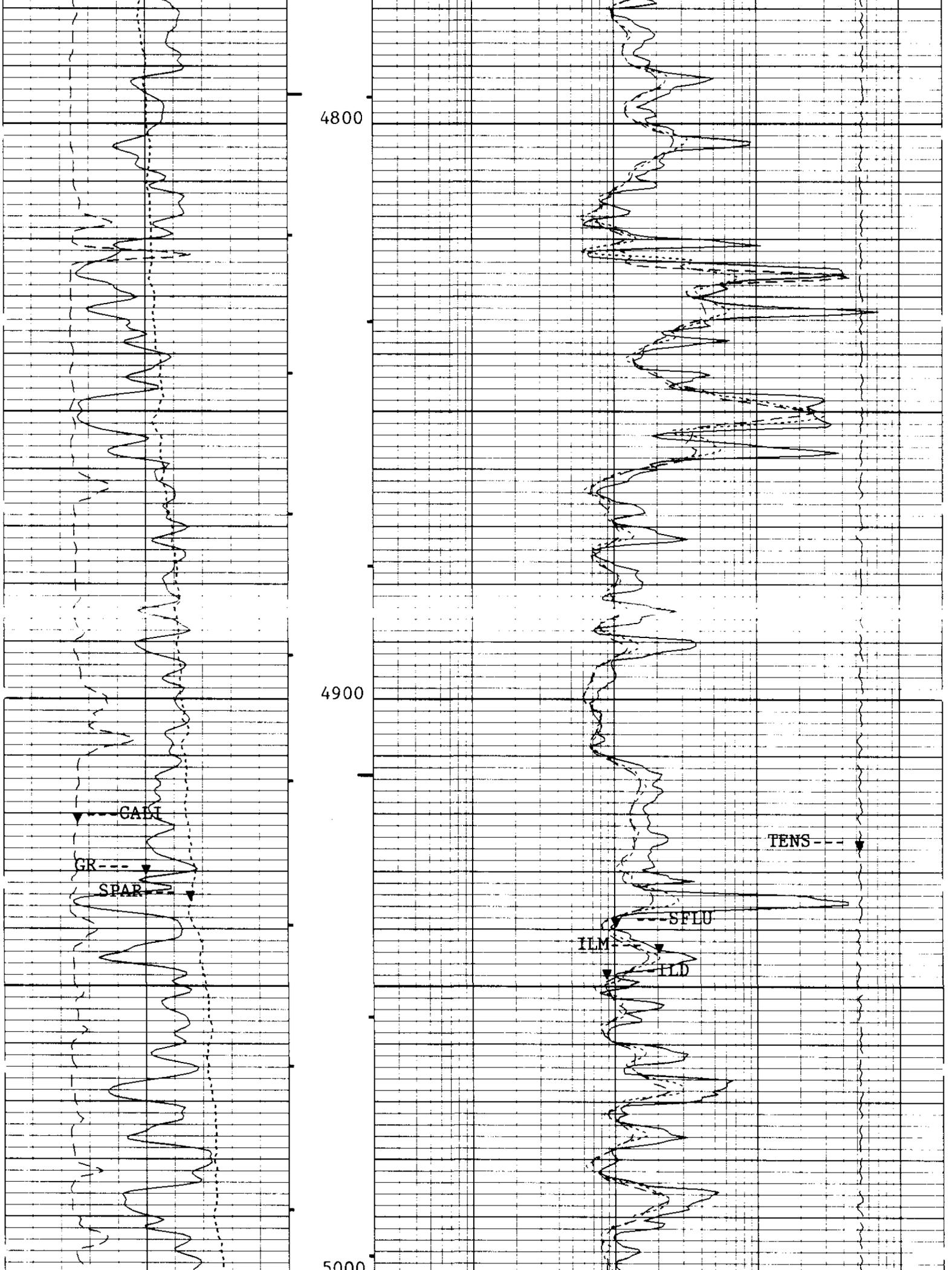


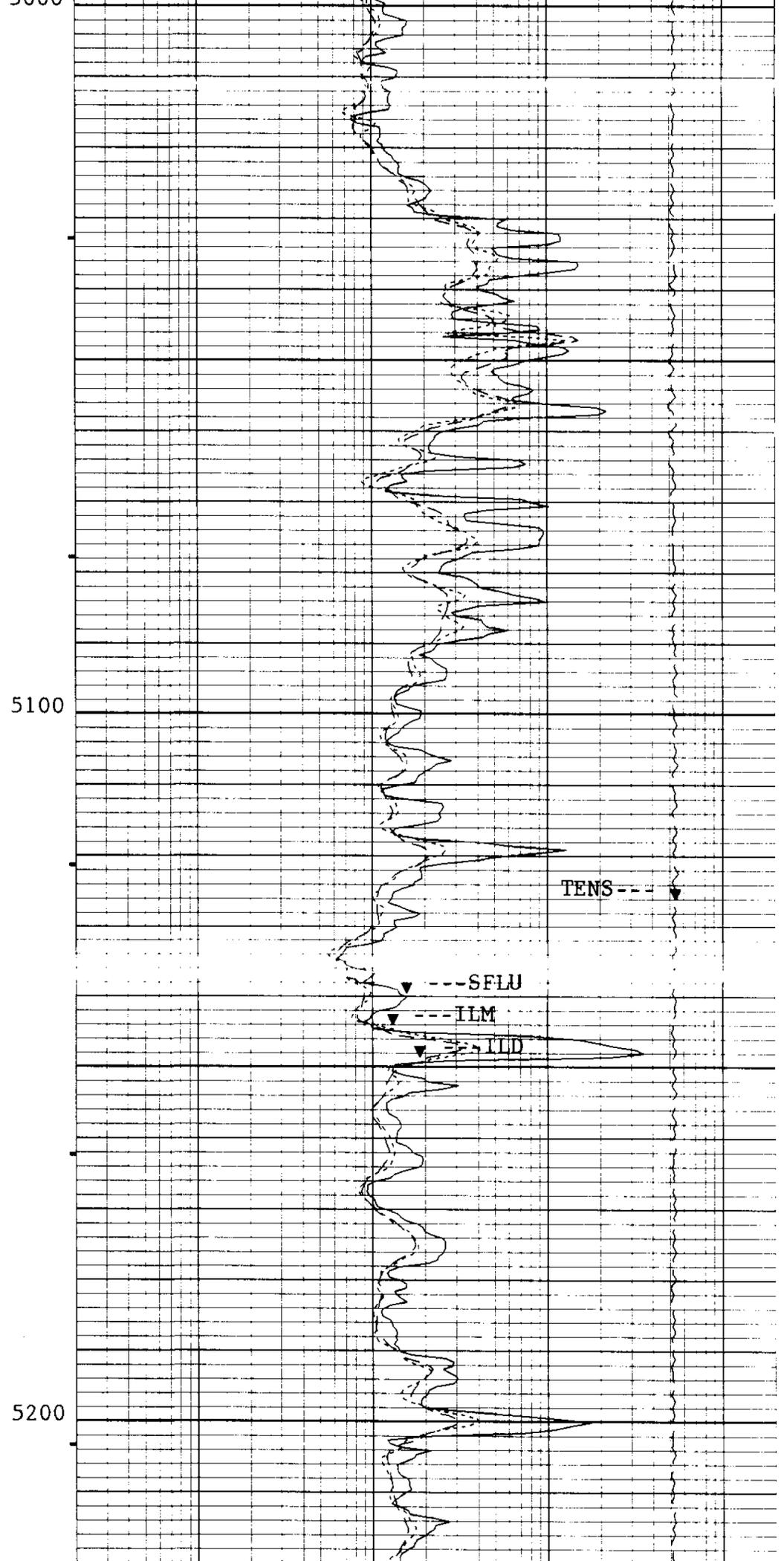
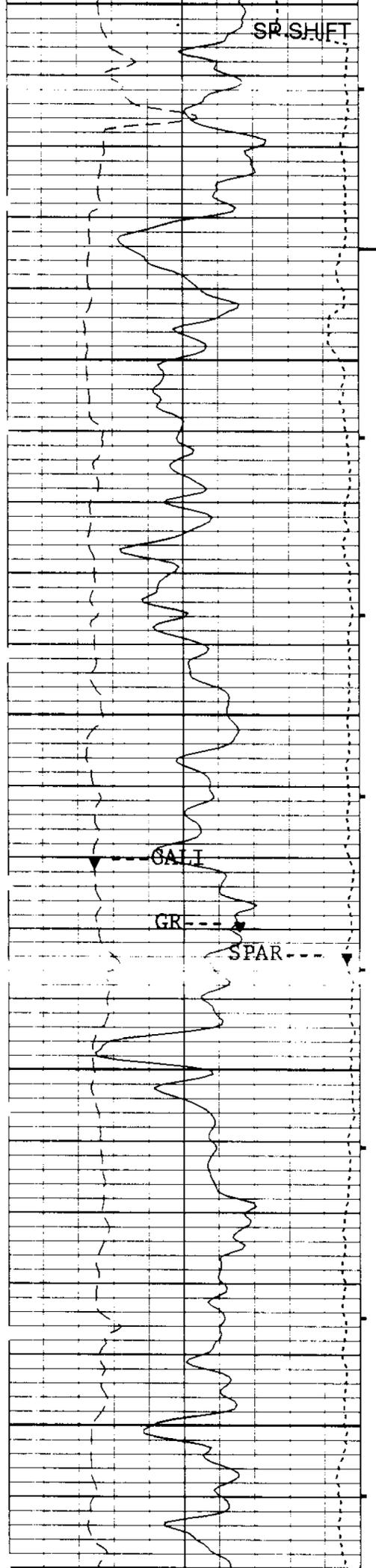


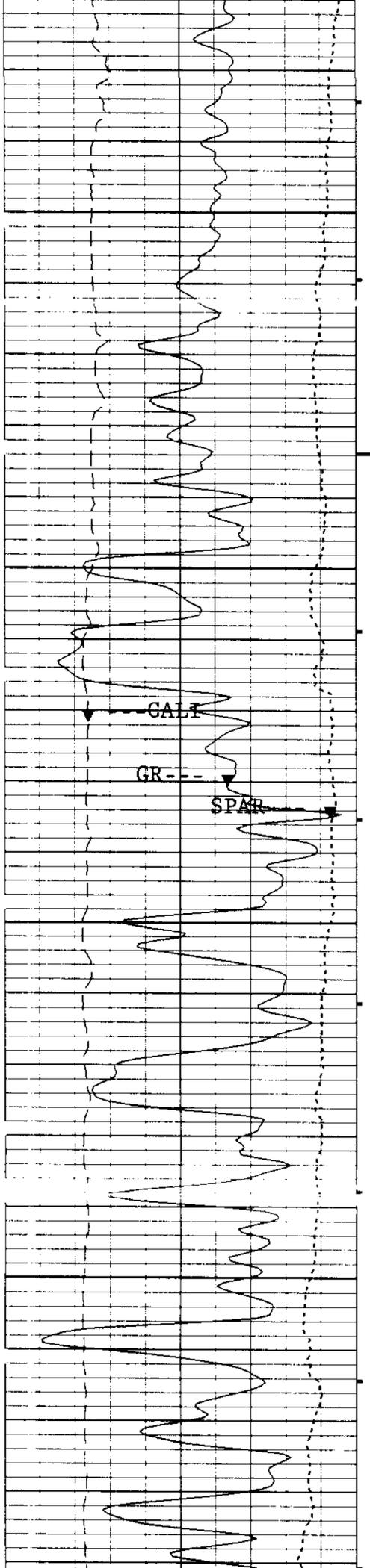












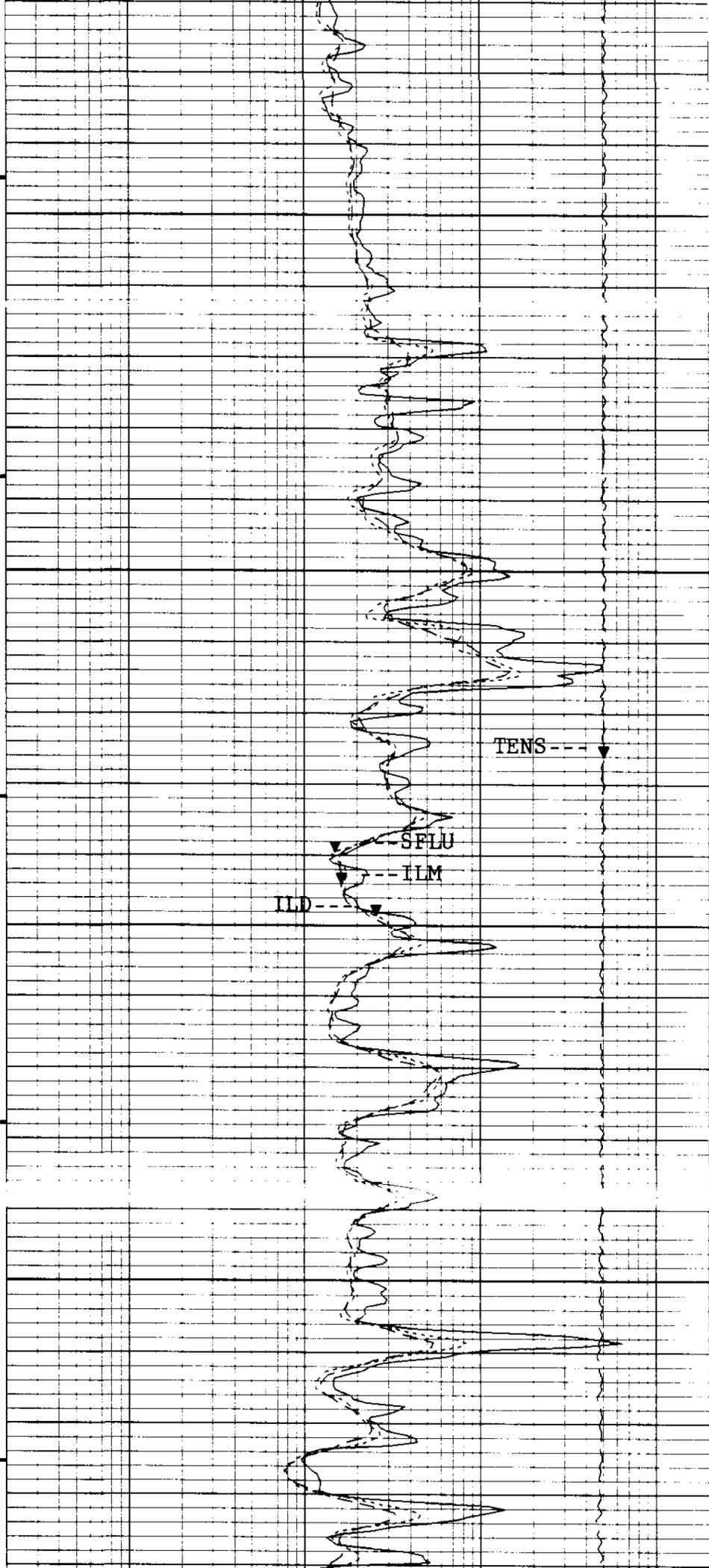
5300

CALT

GR---

SPAR

5400

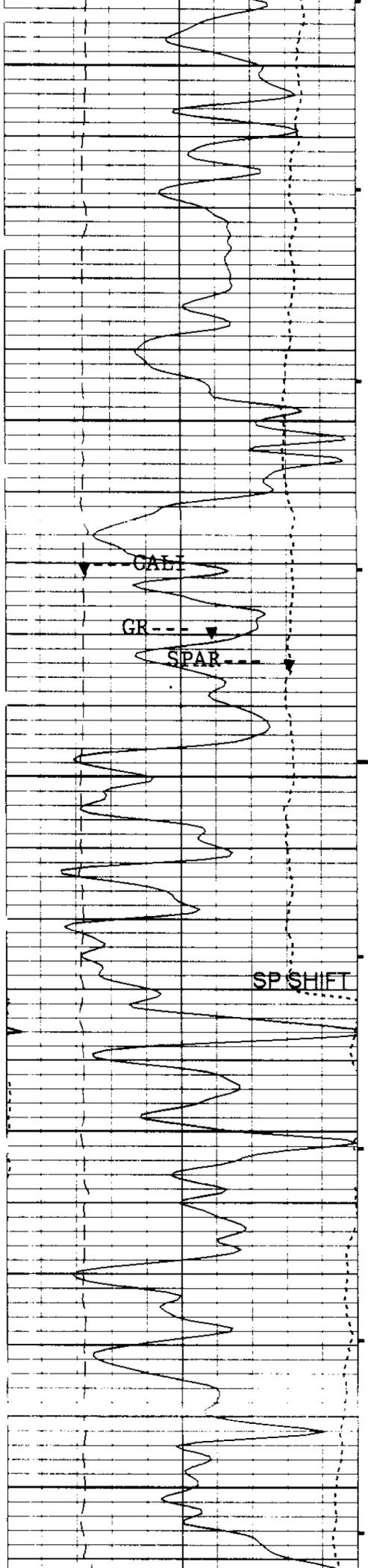


TENS---

SFLU

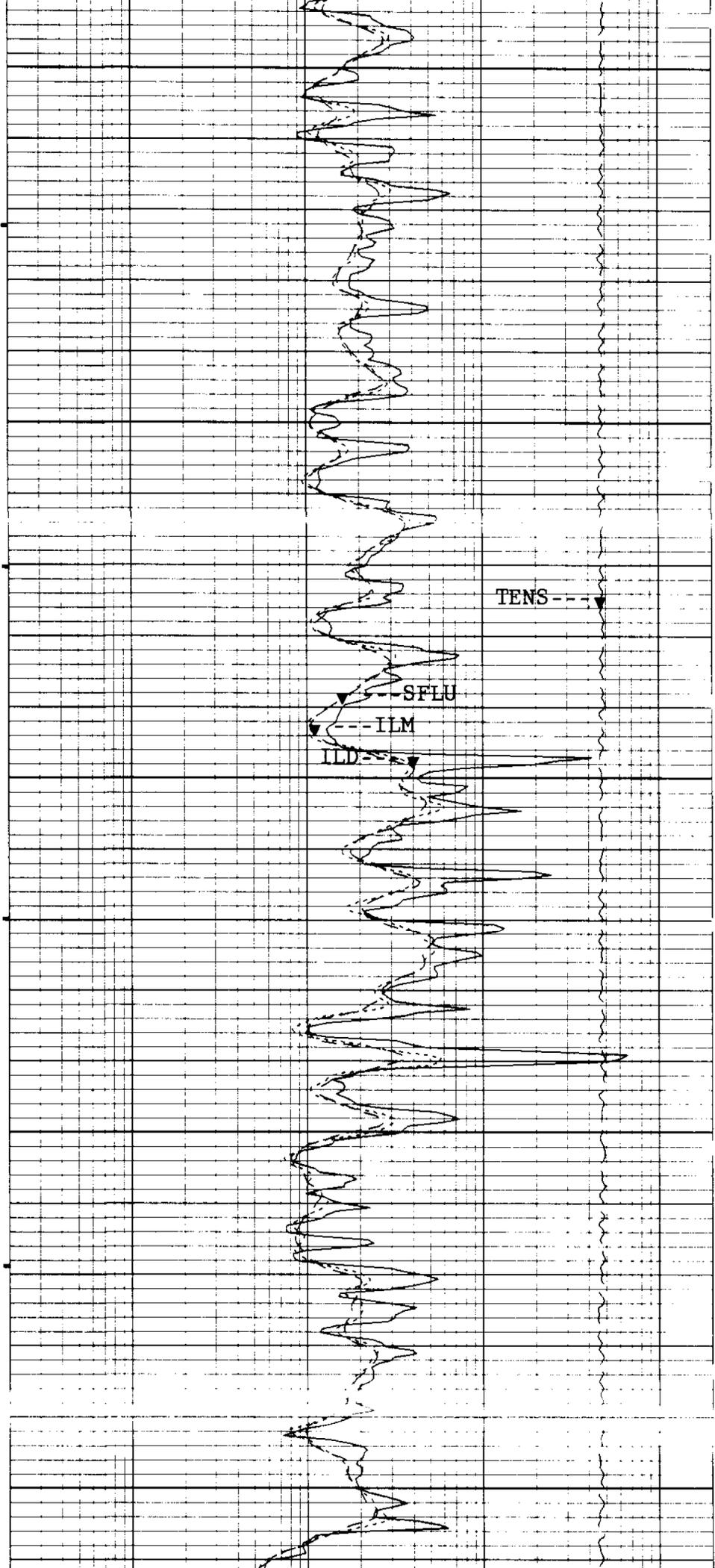
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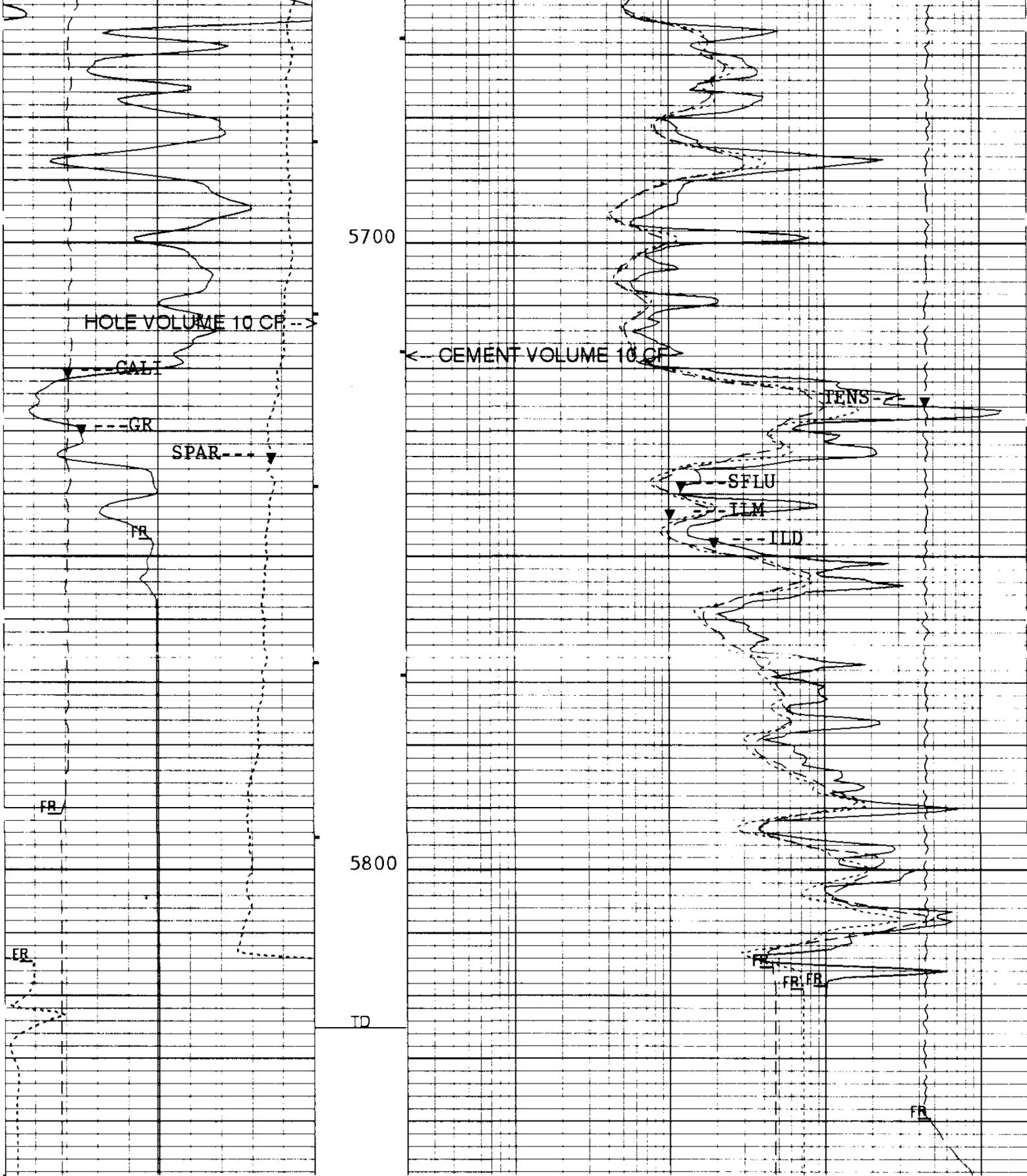
ILD---



5500

5600





5"/100'

CP 40.2

FILE 2 22-OCT-1994 12:53

INPUT FILE(S) 9 CREATION DATE 22-OCT-1994 11:39

TENS(LBF) 10000. 0.0

6.0000	CALI(IN)	16.000	20000	SFLU(OHMM)	2000.0
0.0	GR,GAP	200.00	20000	IN,C-WV	2000.0
-100.0	SPAR(MV)	0.0	20000	ILD(OHMM)	2000.0

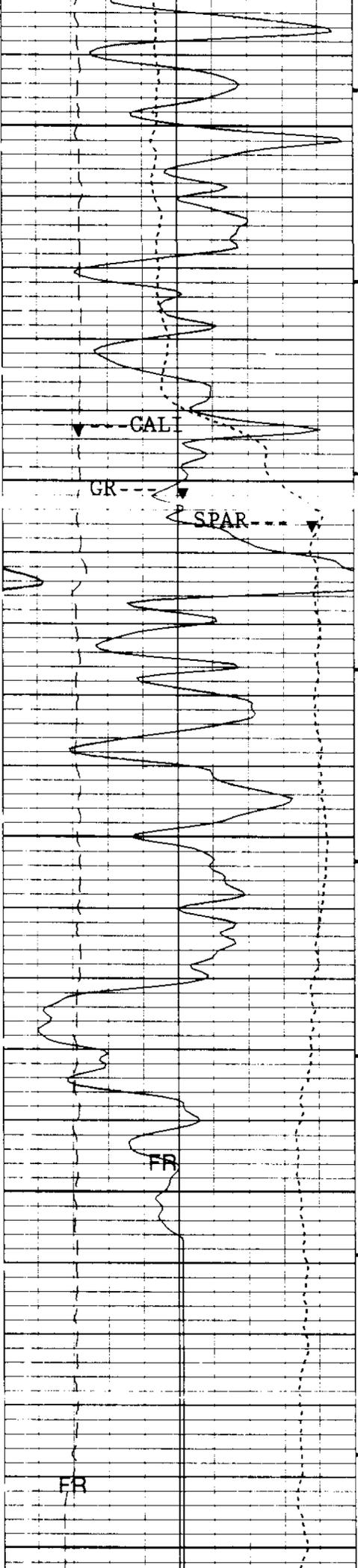
SENSOR MEASURE POINT TO TOOL ZERO

GR	77.8	FEET	SP	10.3	FEET
IRM	6.0	FEET	IXM	6.0	FEET
ITEM	6.5	FEET	IXD	9.5	FEET
SFB	6.5	FEET	SPA	10.3	FEET
SFV	6.5	FEET	SFC	6.5	FEET
SA	70.5	FEET	IRD	9.5	FEET
SPCD	70.5	FEET	LA	70.5	FEET
CNTC	51.0	FEET	CFTC	51.5	FEET
LL	33.9	FEET	LITH	33.9	FEET
LU	33.9	FEET	LS	33.9	FEET
SS1	33.4	FEET	PARI	33.4	FEET
CALI	34.0	FEET	SS2	33.4	FEET
MNOR	70.5	FEET	TENS	-14.7	FEET
TNRA	52.0	FEET	MINV	70.5	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PP	NORM		DO	0.0	F
WMUD	8.30000	LB/G	TD	5825.00	F
FCD	5.50000	IN	DHC	BS	
BFM	LIQU		MDEN	2.68000	G/C3
FD	1.00000	G/C3	DPPM	STAN	
MATR	SAND		HC	CALI	
NPDC	0		HSCO	YES	
SOCO	NO		MCCO	NO	
BSCO	NO		FSCO	NO	
MWCO	NO		PTCO	NO	
CCCO	NO		SDAT	SOCN	
MCOR	NATU		SOCN	.500000	IN
FSAL	-50000.0	PPM	ANGL	0.0	DEG
GGRD	.0100000	DF/F	BHFL	WATE	
IFRS	20	KHZ	SBR	1.00000	OHMM
MXE2	102.891	MM/M	DXE2	95.5788	MM/M
MRE2	10.2060	MM/M	DRE2	13.4785	MM/M
MPH2	-.834638	DEG	DPH2	-.043685	DEG
MGF2	1.00661		DGF2	.999629	
DESP	DISA		SFLE	ALLO	
DCAS	472.000	F	ITEN	ALLO	
DEVI	0.0	DEG	DSES	INVE	
IPRO	STAN		IPHA	NORM	
CDSE	RHOB		CNPS	NPHI	
NCJT	GSRV		GTSE	TEMP	
SHT	80.0000	DEGF	BHT	180.000	DEGF
SPAЕ	ALLO		TDL	5825.00	F
MRT	154.000	DEGF	BSAL	1500.00	PPM
DFD	8.30000	LB/G	RMFS	1.39000	OHMM
MFST	68.0000	DEGF	BS	7.87500	IN
BHS	OPEN				

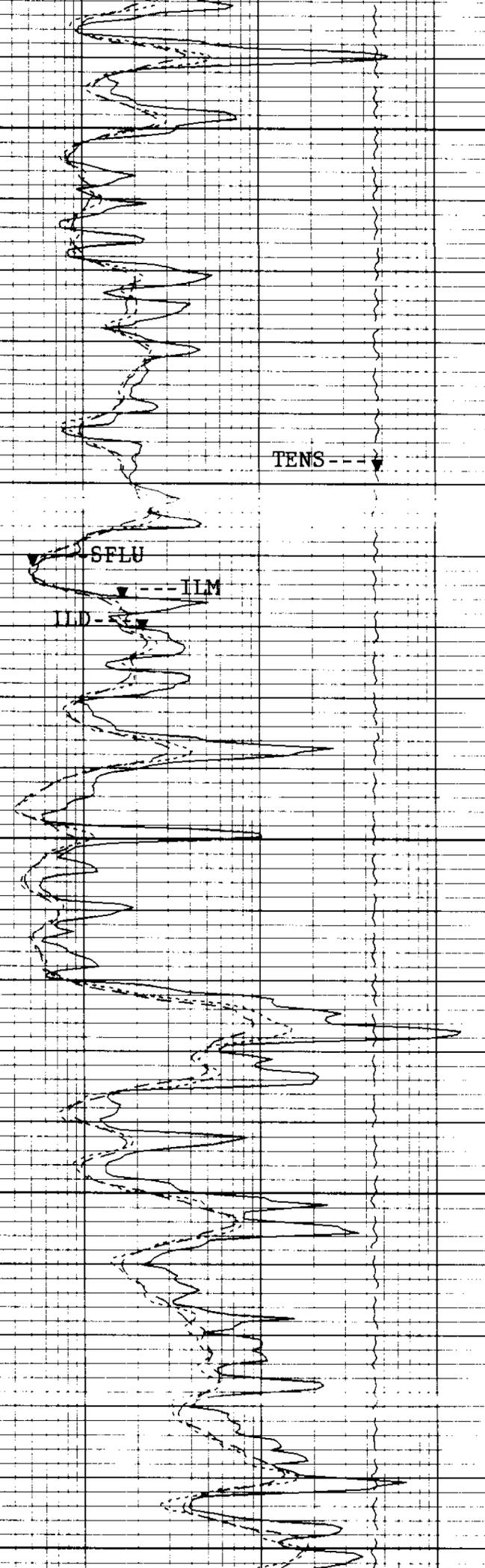
ACCUMULATED INTEGRATION VALUES SUMMARY:

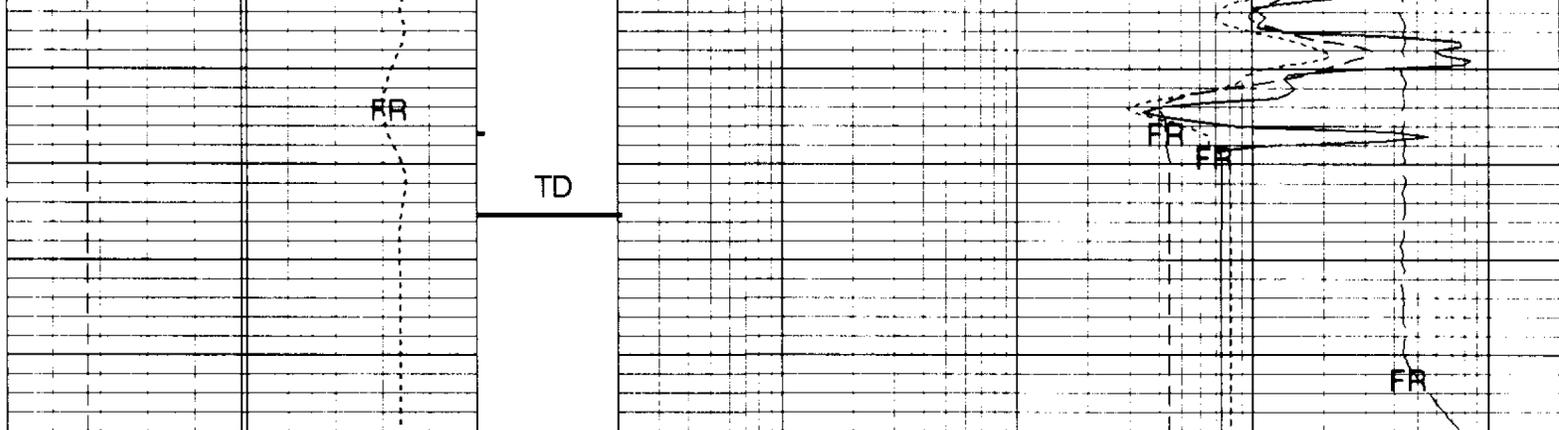


5600

5700

5800





5"/100'

CP 40.2

FILE 8

22-OCT-1994 10:12

(UP)

REPEAT SECTION

		TENS(LBF)	
		10000.	0.0
CALI(IN)		SFLU(OHMM)	
6.0000	16.000	.20000	2000.0
GR(GAP)		ILM(OHMM)	
0.0	200.00	.20000	2000.0
SPAR(MV)		ILD(OHMM)	
-100.0	0.0	.20000	2000.0

SENSOR MEASURE POINT TO TOOL ZERO

DITE 10.3 FEET
 DTT -14.7 FEET
 CNTH 52.0 FEET

SGTL 77.8 FEET
 LDTD 34.0 FEET
 PCDB 70.5 FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
WMUD	8.30000	LB/G	TD	32768.0	F
FCD	5.50000	IN	DHC	BS	
BFM	LIQU		MDEN	2.68000	G/C3
FD	1.00000	G/C3	DPPM	STAN	
MATR	SAND		HC	CALI	
NPDC	0		HSCO	YES	
SOCO	NO		MCCO	NO	
BSCO	NO		FSCO	NO	
MWCO	NO		PTCO	NO	
CCCO	NO		SDAT	SOCN	
MCOR	NATU		SOCN	.500000	IN
FSAL	-50000.0	PPM	ANGL	0.0	DEG
GGRD	.0100000	DF/F	BHFL	WATE	
IFRS	20	KHZ	SBR	1.00000	OHMM
MXE2	102.891	MM/M	DXE2	95.5788	MM/M
MRE2	10.2060	MM/M	DRE2	13.4785	MM/M
MPH2	-.834638	DEG	DPH2	-.043685	DEG
MGF2	1.00661		DGF2	.999629	
DESP	DISA		SFLE	ALLO	
DCAS	472.000	F	ITEN	ALLO	
DEVI	0.0	DEG	DSES	INVE	
IPRO	STAN		IPHA	NORM	
CDSE	RHOB		CNPS	NPHI	
NCJT	GSRV		GTSE	TEMP	
SHT	80.0000	DEGF	BHT	180.000	DEGF
SPAE	ALLO		BSAL	1500.00	PPM

DFD 8.30000 LB/G RMFS -50000.0 OHMM
 MFST -50000.0 DEGF BS 7.87500 IN
 BHS OPEN

AFTER SURVEY TOOL CHECK SUMMARY

PERFORMED: 22-OCT-1994 13:37
 PROGRAM FILE: TOH (VERSION 40.2 93/10/15 93/10/15)

DITE TOOL CHECK

SONDE SERIAL NUMBER: 468
 CARTRIDGE SERIAL NUMBER: 465
 FILE: 8 DEPTH INTERVAL: 5848.5 - 5487.5 F
 9 5848.5 - 3636.0 F
 10 3755.0 - 90.5 F

MEAN CALIBRATION CHANGE

	ABSOLUTE CHANGE FOR RESISTIVITY > 27 OHM-M		PERCENT CHANGE FOR RESISTIVITY < 27 OHM-M		SFL ABS. CHANGE FOR RESISTIVITY < 1 OHM-M	
	CHANGE (MM/M)	TOLERANCE (MM/M)	CHANGE (%)	TOLERANCE (%)	CHANGE (OHMM)	TOLERANCE (OHMM)
DEEP	.04	< 0.75	.08	< 2.0		N/A
MEDIUM	.05	< 0.75	.09	< 2.0		N/A
SFL	.00	< 0.75	.02	< 2.0	.001	< 0.02

NOTE: Log quality flags in depth track indicate when electronic calibration is out of tolerance. Flagged values ARE now included in this table.

PCDB TOOL CHECK

	ZERO		PLUS		UNITS
	BEFORE	AFTER	BEFORE	AFTER	
MINV	0.0	.0	5.0	5.0	OHMM
MNOR	0.0	0.0	5.0	5.0	OHMM

BEFORE SURVEY: ZERO: 22-OCT-1994 09:16 PLUS: 22-OCT-1994 09:18
 AFTER SURVEY CHECK: ZERO: 22-OCT-1994 13:36 PLUS: 22-OCT-1994 13:37

CP 40.2 FILE 12 22-OCT-1994 13:37

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 22-OCT-1994 10:04
 PROGRAM FILE: TOH (VERSION 40.2 93/10/15 93/10/15)

SGTL DETECTOR CALIBRATION SUMMARY

MEASURED
 BKGD JIG CALIBRATED UNITS

BACK: 22-OCT-1994 09:07 JIG: 22-OCT-1994 09:14 COMP: 22-OCT-1994 09:14

LDTD DETECTOR CALIBRATION SUMMARY

DENSITY RESISTIVITY SONDE NUMBER : 4738
 NUCLEAR SERVICE CARTRIDGE NUMBER : 2919
 POWERED DETECTOR HOUSING NUMBER : 3738
 POWERED GAMMA-GAMMA DETECTOR NUMBER : 3732
 LDT LOGGING SOURCE NUMBER : 1786
 LDT CALIBRATION MODE : WATE

	MEASURED	SHOP VALUES		UNITS
	BKGD	AL+FE	AL	
LL	15.5	92.4	101.7	CPS
LU	59.1	139.6	155.5	CPS
LS	45.1	162.1	179.4	CPS
LITH	4.5	41.2	62.4	CPS
SS1	13.4	184.7	205.6	CPS
SS2	8.9	255.1	280.0	CPS

HV SETTINGS DETECTOR RESOLUTIONS
 HV LS: 1206.3 V LS: 8.6 %
 HV SS: 1180.8 V SS: 8.4 %

BKGD: 22-OCT-1994 09:07

CNTH DETECTOR CALIBRATION SUMMARY

NEUTRON COMPENSATED CARTRIDGE NUMBER: 290
 NEUTRON SOURCE SERIAL NUMBER : 2549
 THERMAL HOUSING NUMBER : 4373
 THERMAL CALIBRATED NEUTRON BOX : 3221

INPUT	PLUS REFERENCE COUNTS	SHOP TANK COUNTS	SHOP JIG COUNTS	BEFORE JIG COUNTS	GAIN
CNTC	6031.00	6410.37	2874.25	2852.90	.941
CFTC	2793.00	2702.65	1228.84	1209.44	1.033
RATIO	2.159	2.372	2.339	2.359	

BACK: 22-OCT-1994 09:07 JIG: 22-OCT-1994 09:14 COMP: 22-OCT-1994 08:23

DITE ELECTRONICS CALIBRATION SUMMARY

SONDE SERIAL NUMBER: 468
 CARTRIDGE SERIAL NUMBER: 465
 INDUCTION FREQUENCY: 20 KHZ

INDUCTION ELECTRONICS:

	OFFSET (MM/M)	VALID RANGE (MM/M)	GAIN (---)	VALID RANGE (---)	PHASE (DEG.)	VALID RANGE (DEG.)
IRD	8.6	-117. => 133.	.917	.78 => 1.09		
IXD	12.4	-113. => 137.	.931	.79 => 1.11	7.39	-8.65 => 21.35
IRM	32.9	-193. => 257.	.948	.80 => 1.13		
IXM	32.4	-193. => 257.	.953	.80 => 1.14	8.50	-7.53 => 22.47

SFL ELECTRONICS:

	OFFSET	VALID RANGE	UNITS	GAIN	VALID RANGE
SFV	.4	-14.6 => 15.4	MV	1.02	.87 => 1.22
SFC	.0	-.6 => .6	MA	1.01	.86 => 1.21

PCDB ELECTRONICS CALIBRATION SUMMARY

	MEASURED		CALIBRATED		UNITS
	ZERO	PLUS	ZERO	PLUS	
MINV	0.0	4.5	0.0	5.0	OHMM
MNOR	0.0	3.3	0.0	5.0	OHMM

ZERO: 22-OCT-1994 09:16 PLUS: 22-OCT-1994 09:18 COMP: 22-OCT-1994 09:18

PCDB CALIPER CALIBRATION SUMMARY

	MEASURED		CALIBRATED		UNITS
	SMALL	LARGE	SMALL	LARGE	
LA	2.13	10.65	8.00	16.00	IN
SA	0.0	0.0	0.0	0.0	IN

SMALL: 22-OCT-1994 09:16 LARGE: 22-OCT-1994 09:18 COMP: 22-OCT-1994 09:18

LDTD CALIPER CALIBRATION SUMMARY

	MEASURED		CALIBRATED		UNITS
	SMALL	LARGE	SMALL	LARGE	
CALI	7.36	12.40	8.00	12.00	IN

SMALL: 22-OCT-1994 09:03 LARGE: 22-OCT-1994 09:09 COMP: 22-OCT-1994 09:09

CP 40.2 FILE 5 22-OCT-1994 10:03

SHOP SUMMARY

PERFORMED: 28-SEP-1994 16:25
PROGRAM FILE: CCSHOP (VERSION 40.2 93/10/15 93/10/15)

DITE CALIBRATION SUMMARY

SONDE SERIAL NUMBER: 468
CARTRIDGE SERIAL NUMBER: 465

SHOP CONSTANTS

TEST LOOP CALIBRATION: CALIBRATION OF INTERNAL REFERENCE TO TEST LOOP STANDARD

	CONS.	GAIN	VALID RANGE	CONS.	PHASE	VALID RANGE
		(---)	(---)		(DEG)	(DEG)
10KHZ:						
ILD:	DGF1	.990	.900 => 1.100	DPH1	.02	-1.50 => 1.50
ILM:	MGF1	1.008	.900 => 1.100	MPH1	-.35	-1.50 => 1.50

20KHZ:
ILD: DGF2 1.000 .900 => 1.100 DPH2 .04 -1.50 => 1.50
ILM: MGF2 1.008 .900 => 1.100 MPH2 -.35 -1.50 => 1.50

ILD: DGF2 1.000 .900 => 1.100 DPH2 -.04 -2.00 => 2.00
 ILM: MGF2 1.007 .900 => 1.100 MPH2 -.83 -3.00 => 1.00

40KHZ:

ILD: DGF4 1.011 .900 => 1.100 DPH4 -1.28 -4.00 => 2.00
 ILM: MGF4 1.008 .900 => 1.100 MPH4 -2.03 -5.00 => 1.00

SONDE ERROR CORRECTIONS: CORRECTION FOR SONDE RESPONSE IN ZERO CONDUCTIVITY ENVIRONMENT

CONS. SONDE ERROR VALID RANGE
 CORRECTION (MM/M) (MM/M)

10KHZ:

IRD SEC: DRE1 37.75 -50.0 => 125.0
 IXD SEC: DXE1 162.33 -250.0 => 350.0
 IRM SEC: MRE1 57.87 -50.0 => 140.0
 IXM SEC: MXE1 175.03 -1300.0 => 1300.0

20KHZ:

IRD SEC: DRE2 13.48 -30.0 => 30.0
 IXD SEC: DXE2 95.58 -125.0 => 200.0
 IRM SEC: MRE2 10.21 -50.0 => 50.0
 IXM SEC: MXE2 102.89 -650.0 => 650.0

40KHZ:

IRD SEC: DRE4 2.17 -15.0 => 15.0
 IXD SEC: DXE4 64.54 -75.0 => 125.0
 IRM SEC: MRE4 -3.62 -30.0 => 30.0
 IXM SEC: MXE4 79.48 -350.0 => 350.0

NOTE: ALL SONDE ERROR CORRECTIONS HAVE BEEN NORMALIZED TO 25 DEGC.

SHOP ELECTRONIC CALIBRATION SUMMARY

ELECTRONIC CALIBRATION: CALIBRATION OF SYSTEM ELECTRONICS USING THE INTERNAL REFERENCE

INDUCTION ELECTRONICS:

OFFSET VALID RANGE GAIN VALID RANGE PHASE VALID RANGE
 (MM/M) (MM/M) (--) (---) (DEG.) (DEG.)

10 KHZ:

IRD 22.4 -375. => 375. .917 .75 => 1.25
 IXD 31.5 -375. => 375. .931 .75 => 1.25 7.31 -5.00 => 20.00
 IRM 80.8 -900. => 900. .924 .75 => 1.25
 IXM 79.8 -900. => 900. .929 .75 => 1.25 7.99 -5.00 => 20.00

20 KHZ:

IRD 8.4 -150. => 150. .912 .75 => 1.25
 IXD 12.3 -150. => 150. .925 .75 => 1.25 6.35 -5.00 => 20.00
 IRM 32.2 -350. => 350. .941 .75 => 1.25
 IXM 32.1 -350. => 350. .946 .75 => 1.25 7.47 -5.00 => 20.00

40 KHZ:

IRD 5.4 -100. => 100. .885 .75 => 1.25
 IXD 8.0 -100. => 100. .897 .75 => 1.25 20.80 -10.00 => 35.00
 IRM 20.5 -200. => 200. .932 .75 => 1.25
 IXM 20.5 -200. => 200. .937 .75 => 1.25 21.36 -10.00 => 35.00

SFL ELECTRONICS:

OFFSET VALID RANGE UNITS GAIN VALID RANGE

OFFSET VALID RANGE UNITS GAIN VALID RANGE

SFV .4 -16.0 => 16.0 MV 1.021 .75 => 1.25
SFC .0 -.7 => .7 MA 1.009 .75 => 1.25

CP 40.2 FILE 16 28-SEP-1994 16:24

COMPANY	PETROGLYPH OPERATING CO.	SCHL. FR	5819.0 F
WELL	UTE TRIBAL #4-17	SCHL. TD	5825.0 F
FIELD	ANTELOPE CREEK	DRLR. TD	5832.0 F
COUNTY	DUCHESNE	Elev: KB	5920.0 F
	STATE UTAH	DF	5919.0 F
		GL	5910.0 F



DUAL INDUCTION - SFL

ATTACHMENT NO. 9

LIST OF OWNERS AND AFFIDAVIT NOTIFICATION

AFFIDAVIT OF MAILING

I, Kevin Dickey, Vice President, Operations, Petroglyph Energy, being first duly sworn, depose and state as follows: On July 24th, 2015, I caused to be mailed by certified mail, postage prepaid, return receipt requested, a copy of the Application to convert 1 well that appears on the attached sheet to water injection for enhanced recovery. It was sent to all parties who have an interest within ¼ mile radius from this well. The attached list contains the names of all parties who were notified.

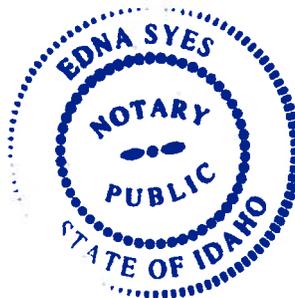
Dated on this 24th day of July, 2015


Kevin Dickey

Vice President, Operations
Petroglyph Energy

The forgoing affidavit was subscribed and sworn to before me by Kevin Dickey.

This 24 day of July, 2015.




Notary Public

July 24th, 2015**Mineral, Surface, and Working Interest Owners**

To Whom It May Concern,

On July 24th, 2015 Petroglyph Energy Inc. submitted to the Environmental Protection Agency an application requesting approval to convert 19 wells to water injection wells in an enhanced recovery program. The well(s) which were submitted are all located in Antelope Creek Field which is operated under a Cooperative Plan of Development between the Ute Tribe and Petroglyph Energy.

Owners at Well's LocationOwners within Well's ¼ mile radius

Mineral: Ute Tribe

No others

Operator: Petroglyph

No others

Surface: Ute Tribe

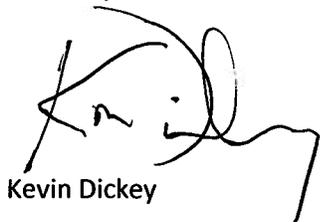
No others

Working Interest: Petroglyph 100%

Anyone who would be directly and adversely affected by the authorization of the underground disposal into the Upper Green River formation may file a written request for a public hearing before the EPA. Logs and additional information on the subject wells are on file with the EPA, Groundwater Program, Mail Code 8P-W-UIC, 1595 Wynkoop St, Denver, Colorado 80202-1129.

Please contact Kevin Dickey at 208-685-7600 if you have any questions.

Sincerely,



Kevin Dickey

Vice President, Operations, Petroglyph Energy

Enclosure

PETROGLYPH OPERATING COMPANY, INC.

ANTELOPE CREEK FIELD

WELLS TO BE CONVERTED TO INJECTION

Well Name and Number	Footages	Section, Township, and Range
Ute Tribal 03-05	SHL: 2871' FNL & 752' FWL BHL: 2340' FNL & 684' FWL	3, T5S-R3W
Ute Tribal 03-12	2272' FSL & 575' FWL	3, T5S-R3W
Ute Tribal 08-11	2187' FSL 2011' FWL	8, T5S-R3W
Ute Tribal 08-12	2100' FSL & 515' FWL	8, T5S-R3W
Ute Tribal 09-01	770' FNL & 1059' FEL	9, T5S-R3W
Ute Tribal 09-04	585' FNL & 722' FWL	9, T5S-R3W
Ute Tribal 10-03	600' FNL & 1650' FWL	10, T5S-R3W
Ute Tribal 17-04	697' FNL & 636' FWL	17, T5S-R3W
Ute Tribal 17-05	1797' FNL & 620' FWL	17, T5S-R3W
Ute Tribal 17-12	2527' FSL & 612' FWL	17, T5S-R3W
Ute Tribal 20-06	2050' FNL & 1950' FWL	20, T5S-R3W
Ute Tribal 20-07	1980' FNL & 1980' FEL	20, T5S-R3W
Ute Tribal 20-11	1959' FSL & 2033' FWL	20, T5S-R3W
Ute Tribal 20-15	574' FSL & 1806' FEL	20, T5S-R3W
Ute Tribal 31-03	422' FNL & 2338' FWL	31, T5S-R3W
Ute Tribal 31-05	1980' FNL & 660' FWL	31, T5S-R3W
Ute Tribal 31-07	1976' FNL & 2168' FEL	31, T5S-R3W
Ute Tribal 31-12	1999' FSL & 748' FWL	31, T5S-R3W
Ute Tribal 36-08-E4	1796' FNL & 713' FEL	36, T5S-R4W



United States Environmental Protection Agency
**Underground Injection Control
 Permit Application**
 (Collected under the authority of the Safe Drinking
 Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		T/A	C
U			

Read Attached Instructions Before Starting
 For Official Use Only

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)				
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 03-05

X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')				
Latitude			Longitude			Township and Range										<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line			
						3	SS	3W	NW							

XIII. Attachments
 (Complete the following questions on a separate sheet(s) and number accordingly; see instructions)
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XIV. Certification
 I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title (Type or Print) Kevin Dickey Vice President, Operations	B. Phone No. (Area Code and No.) (208) 685-7600
C. Signature 	D. Date Signed 07/27/2015



United States Environmental Protection Agency
**Underground Injection Control
 Permit Application**
 (Collected under the authority of the Safe Drinking
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I. EPA ID Number		
	TIA	C
U		

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II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)				
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 03-12

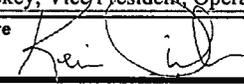
X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project													XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range								
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
						3	5S	3W	SW					

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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations	B. Phone No. (Area Code and No.) (208) 685-7600
C. Signature 	D. Date Signed 07/27/2015

 United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>					I. EPA ID Number <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 80%;"></td> <td style="width: 10%; text-align: center;">T/A</td> <td style="width: 10%; text-align: center;">C</td> </tr> <tr> <td style="text-align: center;">U</td> <td></td> <td></td> </tr> </table>				T/A	C	U		
	T/A	C											
U													
Read Attached Instructions Before Starting For Official Use Only													
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II. Owner Name and Address					III. Operator Name and Address								
Owner Name Petroglyph Energy, Inc.					Owner Name Petroglyph Energy, Inc.								
Street Address 960 Broadway Ave. Suite 500 PO Box 70019			Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019			Phone Number (208) 685-7600					
City Boise		State ID	ZIP CODE 83707		City Boise		State ID	ZIP CODE 83707					
IV. Commercial Facility		V. Ownership		VI. Legal Contact		VII. SIC Codes							
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other		<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator									
VIII. Well Status (Mark "x")													
<input checked="" type="checkbox"/> A Operating	Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed						
IX. Type of Permit Requested (Mark "x" and specify if required)													
<input type="checkbox"/> A. Individual		<input checked="" type="checkbox"/> B. Area		Number of Existing Wells 111		Number of Proposed Wells 1		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 08-11					
X. Class and Type of Well (see reverse)													
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain				D. Number of wells per type (if area permit)					
II		R						1 well, type R					
XI. Location of Well(s) or Approximate Center of Field or Project								XII. Indian Lands (Mark 'x')					
Latitude		Longitude			Township and Range					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
						8	SS	3W	SW				
XIII. Attachments													
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)													
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.													
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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations								B. Phone No. (Area Code and No.) (208) 685-7600					
C. Signature 								D. Date Signed 07/27/2015					



United States Environmental Protection Agency
**Underground Injection Control
 Permit Application**
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 Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		T/A	C
U			

Read Attached Instructions Before Starting
 For Official Use Only

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)			
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1
		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 08-12	

X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						8	5S	3W	SW				

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I. EPA ID Number		
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II. Owner Name and Address			III. Operator Name and Address		
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IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)			
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1
		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 09-01	

X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project											XII. Indian Lands (Mark 'x')		
Latitude			Longitude			Township and Range					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From		Line	Feet From
						9	5S	3W	NE				

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		T/A

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II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")

<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)

<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 09-04
--	---	---------------------------------	-------------------------------	---

X. Class and Type of Well (see reverse)

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	R		1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						9	SS	3W	NW				

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<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)			
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1
		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 10-03	

X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						10	SS	3W	NW				

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		T/A	C

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Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

II. Owner Name and Address			III. Operator Name and Address		
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<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	<input type="text"/>

VIII. Well Status (Mark "x")

<input checked="" type="checkbox"/> A.	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
Operating	<input type="text"/>		

IX. Type of Permit Requested (Mark "x" and specify if required)

<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 17-04
--	---	---------------------------------	-------------------------------	---

X. Class and Type of Well (see reverse)

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	R		1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						17	5S	3W	NW				

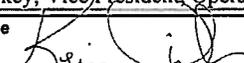
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C. Signature 	D. Date Signed 07/27/2015

 <p>United States Environmental Protection Agency Underground Injection Control Permit Application (Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</p>	I. EPA ID Number		

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Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
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City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")

<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
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IX. Type of Permit Requested (Mark "x" and specify if required)

<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 17-05
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X. Class and Type of Well (see reverse)

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	R		1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						17	5S	3W	NW				

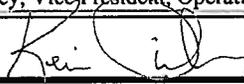
XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations	B. Phone No. (Area Code and No.) (208) 685-7600
C. Signature 	D. Date Signed 07/27/2015

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>	I. EPA ID Number	
		T/A

**Read Attached Instructions Before Starting
 For Official Use Only**

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	<input type="text"/>

VIII. Well Status (Mark "x")

<input checked="" type="checkbox"/> A. Operating	Date Started mo day year <input type="text"/>	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
--	---	--	--------------------------------------

IX. Type of Permit Requested (Mark "x" and specify if required)

<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 17-12
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X. Class and Type of Well (see reverse)

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	R		1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						17	5S	3W	SW				

XIII. Attachments

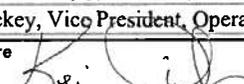
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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations	B. Phone No. (Area Code and No.) (208) 685-7600
C. Signature 	D. Date Signed 07/27/2015

 United States Environmental Protection Agency Underground Injection Control Permit Application (Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)					I. EPA ID Number _____			T/A	C					
Read Attached Instructions Before Starting For Official Use Only					U _____									
Application approved mo day year		Date received mo day year		Permit Number	Well ID	FINDS Number								
_____		_____		_____	_____	_____								
II. Owner Name and Address					III. Operator Name and Address									
Owner Name Petroglyph Energy, Inc.					Owner Name Petroglyph Energy, Inc.									
Street Address 960 Broadway Ave. Suite 500 PO Box 70019			Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019			Phone Number (208) 685-7600						
City Boise		State ID	ZIP CODE 83707		City Boise		State ID	ZIP CODE 83707						
IV. Commercial Facility		V. Ownership		VI. Legal Contact		VII. SIC Codes								
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other		<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator										
VIII. Well Status (Mark "x")														
<input checked="" type="checkbox"/> A. Operating		Date Started mo day year _____		<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed							
IX. Type of Permit Requested (Mark "x" and specify if required)														
<input type="checkbox"/> A. Individual		<input checked="" type="checkbox"/> B. Area		Number of Existing Wells 111		Number of Proposed Wells 1		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-06						
X. Class and Type of Well (see reverse)														
A. Class(es) (enter code(s)) II		B. Type(s) (enter code(s)) R		C. If class is "other" or type is code 'x,' explain			D. Number of wells per type (if area permit) 1 well, type R							
XI. Location of Well(s) or Approximate Center of Field or Project								XII. Indian Lands (Mark 'x')						
Latitude		Longitude			Township and Range					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec			Feet From	Line	Feet From
						20	5S	3W	NW					
XIII. Attachments														
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions) For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.														
XIV. Certification														
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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations								D. Date Signed 07/27/2015						
C. Signature 														



United States Environmental Protection Agency
**Underground Injection Control
 Permit Application**
 (Collected under the authority of the Safe Drinking
 Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		
	T/A	C
U		

Read Attached Instructions Before Starting
 For Official Use Only

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")

<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
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IX. Type of Permit Requested (Mark "x" and specify if required)

<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-07
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X. Class and Type of Well (see reverse)

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	R		1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project													XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range							<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From		Line
						20	SS	3W	NE					

XIII. Attachments
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C. Signature 	D. Date Signed 07/27/2015

	United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>	I. EPA ID Number	
		T/A	C

**Read Attached Instructions Before Starting
For Official Use Only**

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A.	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
Operating			

IX. Type of Permit Requested (Mark "x" and specify if required)			
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1
		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-11	

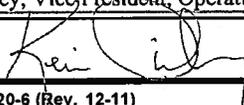
X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	R		1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						20	SS	3W	SW				

XIII. Attachments

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C. Signature 	D. Date Signed 07/27/2015

	United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>	I. EPA ID Number	
		T/A	C

**Read Attached Instructions Before Starting
For Official Use Only**

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A.	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
Operating			

IX. Type of Permit Requested (Mark "x" and specify if required)			
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1
		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-15	

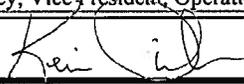
X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						20	5S	3W	SE				

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	Read Attached Instructions Before Starting For Official Use Only							

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address				III. Operator Name and Address			
Owner Name Petroglyph Energy, Inc.				Owner Name Petroglyph Energy, Inc.			
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	
City Boise	State ID	ZIP CODE 83707		City Boise	State ID	ZIP CODE 83707	

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A.	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
Operating			

IX. Type of Permit Requested (Mark "x" and specify if required)				
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-03

X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project											XII. Indian Lands (Mark 'x')		
Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From			Line
						31	5S	3W	NW				
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													

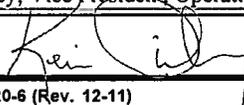
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		T/A

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Application approved	Date received	Permit Number	Well ID	FINDS Number
mo day year	mo day year			

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")

<input checked="" type="checkbox"/> A.	Date Started	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
Operating	mo day year		

IX. Type of Permit Requested (Mark "x" and specify if required)

<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-05
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X. Class and Type of Well (see reverse)

A. Class(es)	B. Type(s)	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
(enter code(s)) II	(enter code(s)) R		1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						31	5S	3W	NW				
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

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C. Signature 	D. Date Signed 07/27/2015



United States Environmental Protection Agency
**Underground Injection Control
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 (Collected under the authority of the Safe Drinking
 Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		
	T/A	C
U		

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Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")

<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)

<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-07
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X. Class and Type of Well (see reverse)

A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R
---------------------------------------	------------------------------------	---	--

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						31	5S	3W	NE				

XIII. Attachments
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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations	B. Phone No. (Area Code and No.) (208) 685-7600
C. Signature 	D. Date Signed 07/27/2015



United States Environmental Protection Agency
**Underground Injection Control
 Permit Application**
*(Collected under the authority of the Safe Drinking
 Water Act. Sections 1421, 1422, 40 CFR 144)*

I. EPA ID Number		
	T/A	C

Read Attached Instructions Before Starting
 For Official Use Only

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)			
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1
		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-12	

X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						31	5S	3W	SW				

XIII. Attachments
 (Complete the following questions on a separate sheet(s) and number accordingly; see instructions)
 For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

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United States Environmental Protection Agency
**Underground Injection Control
 Permit Application**
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 Water Act. Sections 1421, 1422, 40 CFR 144)

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U		

Read Attached Instructions Before Starting
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Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
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City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A. Operating	Date Started mo day year	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)			
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells 111	Number of Proposed Wells 1
		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 36-08-E4	

X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit) 1 well, type R

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						36	5S	4W	NE				

XIII. Attachments
 (Complete the following questions on a separate sheet(s) and number accordingly; see instructions)
 For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification
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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations	B. Phone No. (Area Code and No.) (208) 685-7600
C. Signature 	D. Date Signed 07/27/2015

ATTACHMENT NO. 10

WELL BORE DIAGRAMS FOR THE UIC WELL

Ute Tribal 17-04 Well History

Well History:

Spud Well: 10/14/1994
 Completed: 12/16/1995
 First Production: 12/22/1995

Tops (KB):

BMSW* Found at 920'

Green River 1147'

A Marker 3728'

X Marker 4224'

Douglas Creek 4364'

B Limestone 4751'

Castle Peak 5286'

Basal Carbonate 5720'

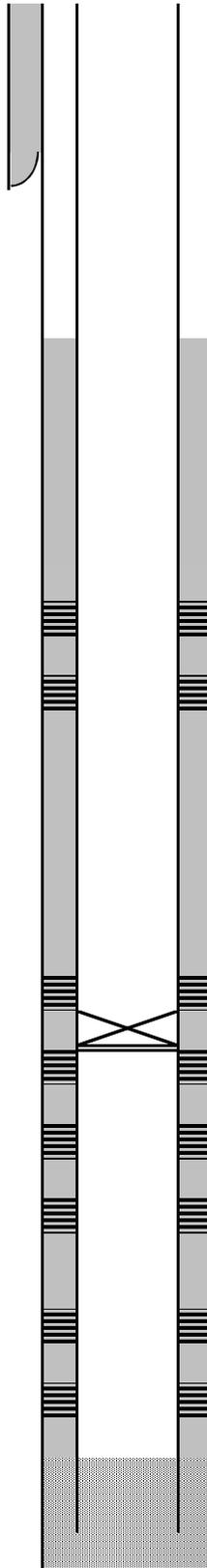
Perf History

12/11/1995

D3	4825' to 4827'
D3	4831' to 4833'
D3	4848' to 4852'
D7	4941' to 4944'

10/1/2010

GG4	3643' to 3654'
B06	3931' to 3938'
B06	3940' to 3946'
B10	4124' to 4130'
B10	4139' to 4148'
B11.1	4168' to 4174'
C05	4410' to 4414'
C05.2	4458' to 4463'
C06	4556' to 4564'
C09.2	4693' to 4697'
BP	at 4790'



GL: 5910'

KB: 5920'

8 5/8" 24# Surface CSG @ 414' KB
 cmt'd w/350 sx

Surface Hole size 12 1/4"

Cement top @ 1796'

5 1/2" 15.5# J-55 CSG @ 5822'
 cmt'd w/495sx

Hole Size 7 7/8" bit

Perf's:

GG4 3643' to 3654'

B06 3931 to 3938'

B06 3940' to 3946'

B10 4124' to 4130'

B10 4139' to 4148'

B11.1 4168' to 4174'

C05 4410' to 4414'

C05.2 4458' to 4463'

C06 4556' to 4564'

C09.2 4693' to 4697'

BP @ 4790'

D3 4825' to 4827'

D3 4831' to 4833'

D3 4848' to 4852'

D7 4941' to 4944'

PBTD @ 5765' KB

TD @ 5832' KB

Petroglyph Operating Co., Inc
 Ute Tribal #17-04
 (697' FNL & 636' FWL)
 NW NW Section 17, 5S- 3W
 Antelope Creek Field
 Duchesne Co. Utah
 API#: 43013314640000

*Plate 1 Utah Geological Survey Special Study 144.
 (2012). BMSW Elevation Contour Map, Uinta
 Basin, Utah. [map]. (CA 1:200,000)

(Not to Scale)

Ute Tribal 17-04 Injection

Well History:

Spud Well: 10/14/1994
 Completed: 12/16/1995
 First Production: 12/22/1995

Tops (KB):

BMSW* Found at 920'

Green River 1147'

A Marker 3728'

X Marker 4224'

Douglas Creek 4364'

B Limestone 4751'

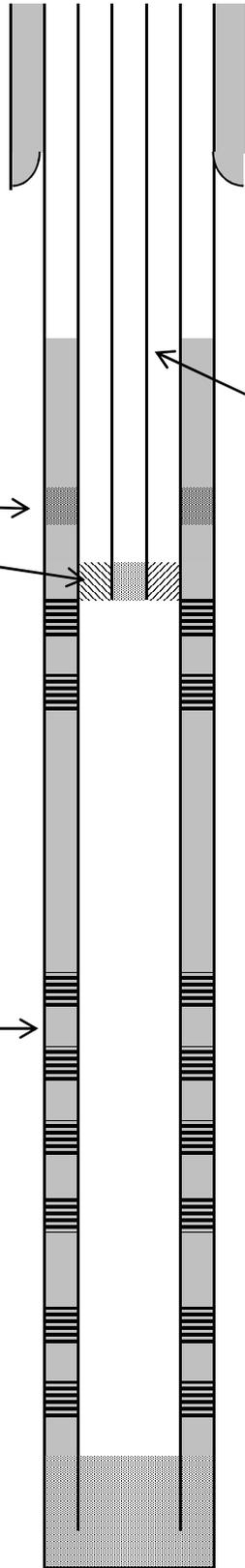
Castle Peak 5286'

Basal Carbonate 5720'

Squeeze perms 3643' to 3654' →

Injection Packer @ 3841' →

Remove BP @ 4790 →



GL: 5910'

KB: 5920'

8 5/8" 24# Surface CSG @ 414' KB
 cmt'd w/350 sx

Surface Hole size 12 1/4"

Cement top @ 1796'

5 1/2" 15.5# J-55 CSG @ 5822'
 cmt'd w/495sx

Tubing 2 7/8" 6.5# J55

Hole Size 7 7/8" bit

Perf's:

GG4 3643' to 3654'

B06 3931 to 3938'

B06 3940' to 3946'

B10 4124' to 4130'

B10 4139' to 4148'

B11.1 4168' to 4174'

C05 4410' to 4414'

C05.2 4458' to 4463'

C06 4556' to 4564'

C09.2 4693' to 4697'

D3 4825' to 4827'

D3 4831' to 4833'

D3 4848' to 4852'

D7 4941' to 4944'

PBTD @ 5765' KB

TD @ 5832' KB

Petroglyph Operating Co., Inc.

Ute Tribal #17-04

(697' FNL & 636' FWL)

NW NW Section 17, 5S- 3W

Antelope Creek Field

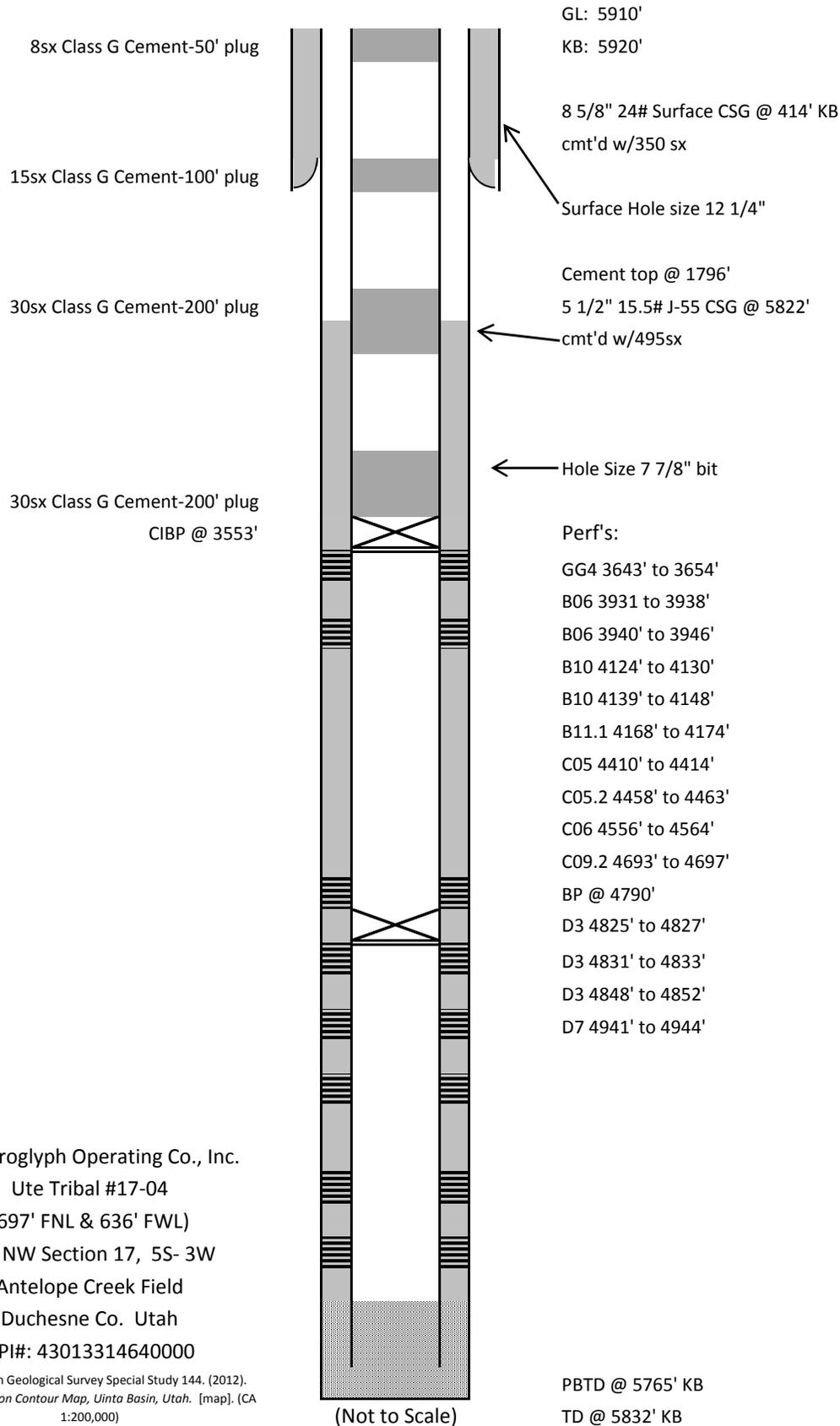
Duchesne Co. Utah

API#: 43013314640000

*Plate 1 Utah Geological Survey Special Study 144. (2012).
 BMSW Elevation Contour Map, Uinta Basin, Utah. [map].
 (CA 1:200,000)

(Not to Scale)

Ute Tribal 17-04 Plug and Abandonment



ATTACHMENT NO. 11

P&A PROCEDURE

Plug and Abandonment Procedure

Ute Tribal 17-04

43-013-31464

1. Obtain authorization from regulatory agencies for P&A procedures.
2. Set deadman. Rig up pulling unit. Rig down wellhead. Install BOP. Release packer. Trip out of hole with tubing and packer.
3. RIH Set CIBP @ 3553'.
4. Trip in hole with tubing. Establish pump rate, spot 30sxs Class G cement on top of CIBP. This will be a 200' plug.
5. Raise the tubing to 1796' and set balanced 200' cement plug using 30sxs of Class G cement.
6. Raise the tubing to 414' and set balanced 100' cement plug using 15sxs of Class G cement.
7. Set balanced 50' cement plug (8 sxs of Class G cement) from 50' to surface.
8. Cut off wellhead. Install plate and identification P&A post marker. Weld to casing.
9. File reports with the agencies and reclaim surface locations.

ATTACHMENT NO. 12

MIT PROCEDURE

Mechanical Integrity Test Procedure

Ute Tribal 17-04

43-013-31464

Integrity testing can be accomplished by pressuring up the annulus between the casing and the tubing. The pressure and duration of the test will be as required by the EPA.

Test Procedure Details:

1. Two weeks prior, notify EPA of pending work. Shut well in.
2. Record fluid level with echometer.
3. MIRU Service Unit.
4. POOH laying down rods and pump.
5. ND Wellhead. NU BOPs. POOH laying down 2 7/8" tubing.
6. PU plug and packer and new tubing. RIH and breakdown perms.
7. POOH. RIH with injection packer to 3841'.
8. Reverse circulate in packer fluid.
9. Set packer and ND BOPs and NU wellhead.
10. Pressure test casing-tubing annulus to 1500psi for 15 minutes.
11. RDMO.
12. Notify EPA of test, wait for approval.
13. Return to injection.

ATTACHMENT NO. 13

SURETY BOND LETTER



SURETY BOND STATEMENT

July 27, 2015

Petroglyph currently operates 111 injection wells in Antelope Creek Field under EPA UIC Area Permit UT2736-00000. The existing wells are covered by UIC Bond No. LPM 4138351.

Prior to final permit approval, Petroglyph will add a rider to the existing bond to include this well along with the other wells being submitted to EPA at this time.

Kevin Dickey

V.P., Operations

Petroglyph Energy, Inc.

PETROGLYPH OPERATING COMPANY, INC.